ReumaBulletinen

TIDSKRIFT FÖR SVENSK REUMATOLOGISK FÖRENING · NUMMER 133 · 4/2019

Reumadagarna i Falun 2019
Program och abstracts

ReumaBulletinen

ReumaBulletinen är Svensk Reumatologisk Förenings tidskrift och utkommer med sju nummer per år

Ansvarig utgivare
Cecilia Carlens
Reumatologiska Kliniken
Karolinska Universitetssjukhuset
171 76 Stockholm
Tel: 070-737 5390
cecilia.carlens@karolinska.se

Redaktör
Tomas Bremell
Reumatologi
Sahlgrenska Universitetssjukhuset
Gröna Stråket 12
413 45 Göteborg
Tel 031-342 33 78
tomas.bremell@vgregion.se

Red.medlemmar
Gerd-Marie Alenius
gerdmarie.alenius@vll.se
Bengt Lindell
bengt@lindell.cc
Ioannis Parodis
ioannis.parodis@sll.se
Milad Rizk
milad.rizk@ltv.se
Marit Stockfelt
marit.stockfelt@vgregion.se

Har du flyttat eller bytt mejladress?
Gör eventuella ändringar på: **www.svenskreumatologi.se** eller mejla till: **koordinator@svenskreumatologi.se**

Produktion
Mediahuset i Göteborg AB
Marieholmsgatan 10C
415 02 Göteborg
www.mediahuset.se
Tel 031-7071930

Annonser
Niklas Lundblad
niklas@mediahuset.se

Layout
Anders Svensson
anders.svensson@mediahuset.se

Tryck
Åkessons - GPC Tryck
Emmaboda - Växjö

Distribution
Distribueras som posttidning
ISSN 2000-2246 (Print)
ISSN 2001-8061 (Online)

Utgivningsplan 2019

Nummer	Manusstopp	Utgivning
Nr 1 RB	1 februari	2 mars
Nr 2 RB Vetenskap	15 mars	18 april
Nr 3 RB	25 april	25 maj
Nr 4 RB	10 juni	5 augusti
Nr 5 RB	22 september	25 oktober
Nr 6 RB Vetenskap	10 oktober	13 november
Nr 7 RB	10 november	14 december

Innehåll · 4/2019

Omslagsbild: Falun är värd för årets Reumadagar 11-13 september. Här har gruvdrift pågått sedan 800-talet fram till 1992, då malmbrytningen upphörde i Falu gruva, som sedan 2001 är ett världsarv. På omslagsbilden ses i centrum Falu lasarett, i förgrunden en del av gruvområdet och i fonden Lugnets skidanläggning..

www.svenskreumatologi.se

ANNONS

Välkomna till Reumadagarna i Falun

Det är bråda tider, studenttider. En av mina söner tar studenten och som förälder blir det onekligen en del arbete och logistiska övningar. Idag har hela dagen gått åt till att sätta upp ett rejält ”partytält” i trädgården, men oh så ljuvligt att få känna en smula av ungdomarnas glädje och framtidstro, den ljusnande framtid är vår!

September och Reumadagarna i Falun känns långt borta, men när ni läser detta är det inte så många veckor kvar till Sveriges bästa reumatologikongress. Nåja, det finns inte så många tänker ni, men eftersom EULAR har som mål att vara den bästa europeiska ”RMD” kongressen kan vi vara den bästa svenska reumatologikongressen.

Under förra året utarbetade styrelsen en ny organisation för arbetet med Reumadagarna. Den har fungerat väldigt bra och effektiviserat arbetet både för den vetenskaplige sekreteraren och för vice ordföranden samtidigt som alla medarrangörer och värdkliniken deltagit på ett mycket konstruktivt sätt i arbetet. Samarbetet har fungerat mycket väl och det är verkligen värdefullt att vi kan samla alla yrkeskategorier och patientrepresentanter i ett möte tillsammans. Trots detta är det en stor arbetsinsats för den vetenskaplige sekreteraren och vice ordföranden och jag vill passa på att tacka Inger Gjertsson och Lotta Ljung för allt arbete under året!

Vem vet mest?

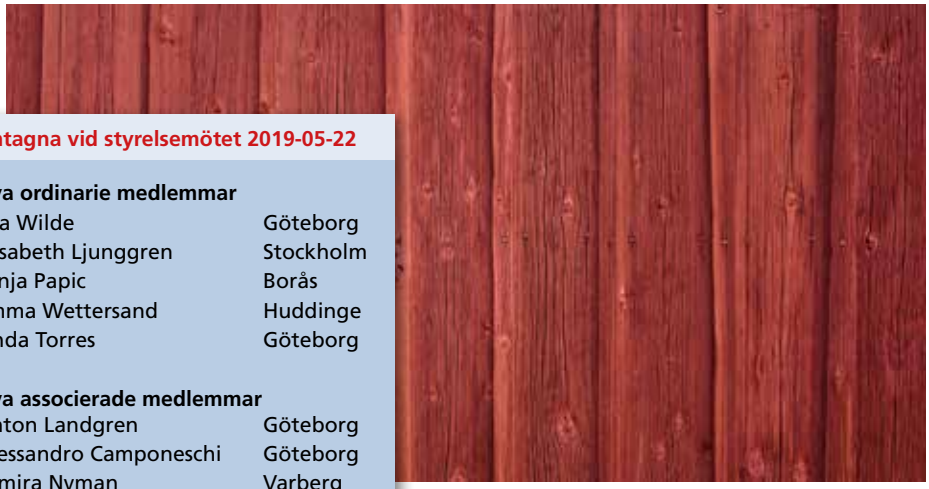
Reumadagarna inleds redan på förmiddagen den 11 september med en ”precourse” i Ledstatus och tid för gruppmöten innan det officiella programmet börjar kl 13.20. Värdkliniken bjuder i år både på en öppningsföreläsning om kardiovaskulär prevention, och ett värdsymposium med den mystiska titeln ”Vem vet mest?”.

De tre medicinska temasymposierna har i år fokus på våra stora sjukdomsgrupper ankyloserande spondylit, gikt och psoriasisartrit. Samtidigt har vi ett spännande parallellt program med symposier om ”self management”, sex och samlevnad och effektiv rehabilitering. Se närmare presentation av programmet och alla inhemska och utländska föreläsare längre fram i tidningen. Det kommer att bli svårt att välja!

I år provar vi att ha de tre guldsponsorernas, Eli Lilly, BMS och AbbVie, symposier invävda i programmet. Vi hoppas att det kommer att fungera bra och vi vill gärna att ni bidrar med att utvärdera det i vår enkät i slutet av mötet.

Ser verkligen fram emot att träffa er alla i Falun! Varmt välkomna!

Cecilia Carlens
Ordförande
cecilia.carlens@sll.se



Antagna vid styrelsemötet 2019-05-22

Nya ordinarie medlemmar

Åsa Wilde	Göteborg
Elisabeth Ljunggren	Stockholm
Tanja Papic	Borås
Emma Wettersand	Huddinge
Linda Torres	Göteborg

Nya associerade medlemmar

Anton Landgren	Göteborg
Alessandro Camponeschi	Göteborg
Samira Nyman	Varberg

SRF:S STYRELSE 2019

Cecilia Carlens
Ordförande
Reumatologiska Kliniken
Karolinska Universitetssjukhuset
171 76 Stockholm
Tel: 070-737 5390
cecilia.carlens@sll.se

Lotta Ljung
Vice ordförande
Reumatologkliniken
Västerbotten
Norrlands Universitetssjukhus, 901 85 Umeå
Tel: 090-7851374
lotta.ljung@vll.se

John Svensson
Facklig sekreterare
Reumatologenheten
Sundsvall
851 86 Sundsvall
tel vx 060-18 10 00
john.svensson@lvn.se

Elisabet Lindqvist
Kassör
Sektion reumatologi
Skånes Universitetssjukhus
221 85 Lund
Tel: 046-17 16 19
elisabet.lindqvist@skane.se

Inger Gjertsson
Vetenskaplig sekreterare
Reumatologmottagningen
Sahlgrenska Universitetssjukhuset
413 45 Göteborg
Tel: 031-342 10 00 vx
inger.gjertsson@vgregion.se

Katarina Almehed
Utbildningsansvarig
Reumatologi/Sahlgrenska Universitetssjukhuset
413 45 Göteborg
Tel: 031-342 10 00 vx
katarina.almehed@vgregion.se

Ylva Borgas
Ledamot, yngreläkarrepresentant
Reumatologkliniken
Sektionen Reumatologi
Skånes Universitetssjukhus
205 02 Malmö
Tel: 040-332489
ylva.borgas@skane.se

taltz®
(ixekizumab)

A treatment for psoriatic arthritis[1]

Taltz – a targeted IL-17A inhibitor with high binding affinity (kd<3 pM)[1]

JOINT IMPROVEMENT IN PATIENTS WITH PSORIATIC ARTHRITIS AT WEEK 24[1]

Biologic naive patients (SPIRIT-P1)

ACR20	ACR50	ACR70
58%	**40**%	**23**%

Biologic experienced patients (SPIRIT-P2)

ACR20	ACR50	ACR70
53%	**35**%	**22**%

Indication: Taltz, alone or in combination with conventional disease-modifying antirheumatic drugs (cDMARDs), is indicated for the treatment of **active psoriatic arthritis** in adults who have responded inadequately, or who are intolerant, to one or more DMARD therapies.[1]

References: 1. Taltz® Summary of Product Characteristics. Eli Lilly and Company.

▼ Detta läkemedel är föremål för utökad övervakning

Taltz 80 mg injektionsvätska, lösning (ixekizumab) förfylld injektionspenna, förfylld spruta
ATC-kod: L04AC13 **Indikationer:** Plackpsoriasis: Taltz är indicerat för behandling av måttlig till svår plackpsoriasis hos vuxna som behöver systemisk behandling. Psoriasisartrit: Taltz, ensamt eller i kombination med metotrexat, är indicerat för behandling av aktiv psoriasisartrit hos vuxna patienter som har svarat otillräckligt eller som inte tolererar en eller flera sjukdomsmodifierande antireumatiska läkemedel (DMARD). **Kontraindikationer:** Allvarlig överkänslighet mot den aktiva substansen eller mot något hjälpämne. Kliniskt betydelsefulla aktiva infektioner (t.ex. aktiv tuberkulos).
Varning: Behandling med Taltz förknippas med ökad infektionsfrekvens t.ex. i form av övre luftvägsinfektioner, oral candidos, konjunktivit samt Tinea-infektioner. Allvarliga överkänslighetsreaktioner, inklusive några fall av angioödem, urtikaria och, sällsynt, fördröjda (10–14 dagar efter injektionen) allvarliga överkänslighetsreaktioner inkluderande utbredd urtikaria, dyspné och höga antikroppstitrar, har rapporterats. Fall av nyinsjuknande i eller exacerbationer av Crohns sjukdom och ulcerös kolit har rapporterats. Taltz ska inte användas samtidigt med levande vacciner.
Datum för översyn av produktresumén: 2018-04-19 För ytterligare information och priser se www.fass.se. Rx, F
Begränsning av subvention: Subventioneras endast för behandling av vuxna patienter med:
- måttlig till svår plackpsoriasis som inte svarat på systemisk behandling såsom ciklosporin, metotrexat eller PUVA (psoralen och ultraviolett A), eller när intolerans eller kontraindikationer föreligger mot sådana behandlingar.
- aktiv psoriasisartrit som behandlats med en TNF-hämmare eller där detta inte är lämpligt.

Eli Lilly Sweden AB. Box 721, 169 27 Solna Besöksadress: Gustav III Boulevard 42, Solna
Telefon +46 8 737 88 00. www.reumatologi.lilly.se

PP-IX-SE-0260/01.2019

Lilly

Länsklinik 2.0 – värd för Reumadagarna i Falun

Reumatologkliniken vid Falu lasarett är sedan 35 år en egen, självständig klinik

Reumatologkliniken i Falun är en av få kliniker i landet som lyckats behålla sin självständighet och är sedan 35 år en egen klinik. När snåla vindar har blåst har klinikledningen tillsammans med vårdpersonalen hittat smarta lösningar och lyckats övervinna de hinder som dykt upp längs vägen.
Den 11–13 september är kliniken värd för Reumadagarna.

På cirka tjugo minuters promenadavstånd från järnvägsstationen ligger Falu lasarett. Strax innanför sjukhusentrén finns hissarna till Reumatologiska kliniken som ligger på sjätte våningen med en storslagen utsikt över Falun.

Det är en varm och solig försommardag när Tomas Husmark, överläkare och verksamhetschef, möter mig i dörren.

Sedan 2014 har han varit chef och dessförinnan biträdande verksamhetschef.

– *Sedan tidernas begynnelse har vi haft som tradition att man som verksamhetschef, och det är alltid en läkare, först är biträdande chef och sitter då med i ledningsgruppen. Det är ett bra sätt att lära sig verksamheten och frågorna och få möjlighet att växa in i ett ledarskap. Det är också ett bra sätt att avdramatisera uppdraget att vara chef.*

Tätt samarbete

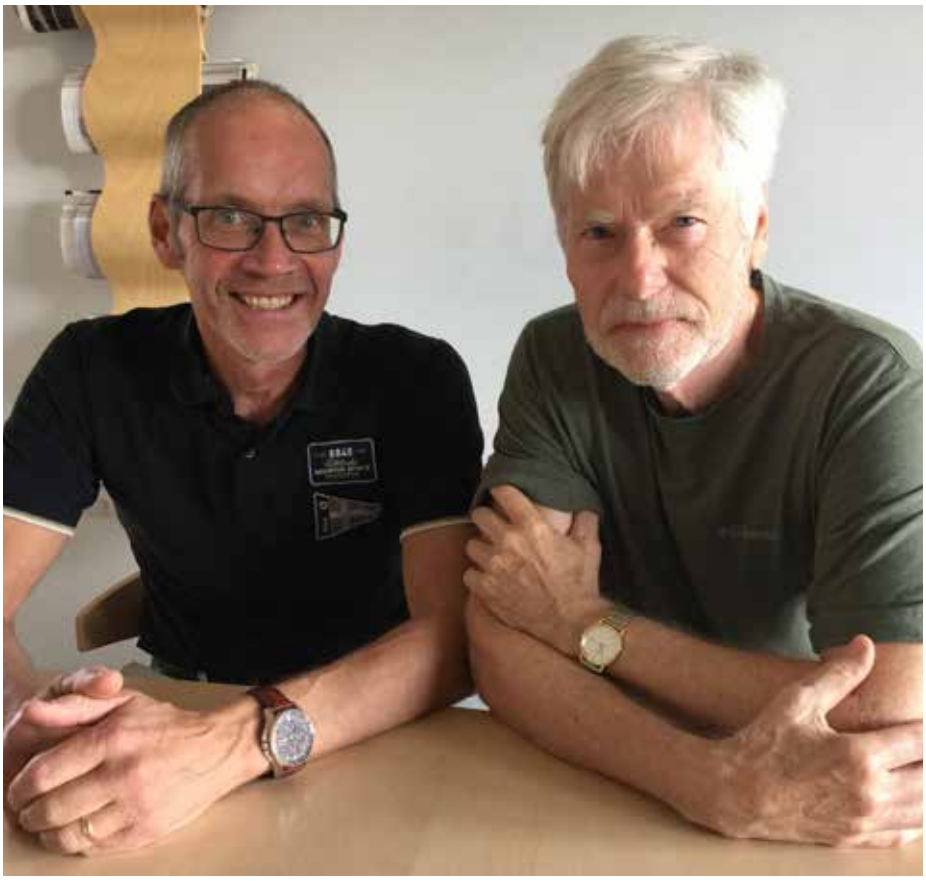
Det har gått mer än 40 år sedan Reumatologkliniken i Dalarnas län sakteliga började ta form och byggas upp på Falu lasarett. Det är i dag en välfungerande länsklinik med ett upptagningsområde på 286 000 invånare. Här arbetar 10 läkare, 7 specialister och 3 ST-läkare, 8 sjuksköterskor, 2 undersköterskor, 3 sekreterare samt en kurator på halvtid.

Kliniken har även tillgång till fysioterapeuter samt arbetsterapeuter.

– *En av våra fysioterapeuter har även en deltidstjänst som verksamhetsutvecklare.*

Verksamheten omfattar en öppenvårds mottagning, en reumatologisk dagvårdsavdelning för utredning och behandling

Specialister på referatmöte. Kajsa Öberg, Elin Staffas (ST), Malin Hemberg, Tomas Husmark, Vala Sigurdardottir, Jörgen Lysholm, Emma Grenholm och Anna Svärd.



Verksamhetschef Tomas Husmark och Mikael Kjällman, specialist i reumatologi med särskilt intresse för mjukdelsreumatologi. I över 40 år arbetade han på kliniken, men är i dag pensionär. "En klinisk klippa", menar Tomas Husmark.

Fram till 2015 hade Reumatologkliniken, som en av få länssjukhus i landet, en slutenvårdsavdelning som stod inför nedläggning. Den räddades kvar, men lades slutligen ned i september 2018.

(REDA), öppenvård med boende på patienthotellet i samma hus, öppenvårdsrehabilitering, infusionsverksamhet och en osteoporosenhet.

– Vi har länets enda bentäthetsmätare och är ett kompetenscentrum och utför drygt 1 000 bentäthetsmätningar varje år. Skälet till att vi har en DEXA-mätare är att vi hade en läkare på kliniken som var särskilt intresserad av osteoporos och som startade en verksamhet som har levt vidare.

Sedan årsskiftet är Reumatologkliniken organiserad under Division medicin, men behåller sin självständighet som basenhet och klinik.

– Vi har fått utvecklas och bestämma väldigt mycket själva och det har varit väldigt lyckosamt. Vi som arbetar på kliniken har en stark sammanhållning och arbetsmiljön är god, vilket märks inte minst på den låga sjukfrånvaron som är cirka två procent, jämfört med sex procent för regionen i övrigt, säger Tomas Husmark.

För drygt fyra år sedan hamnade dock kliniken i ett prekärt läge. Landstinget Dalarna brottades med svåra ekonomiska underskott och situationen var bekymmersam. I det läget gjordes en unik satsning då samtliga divisionschefer, verksamhetschefer, primärvården och psykiatrin samlades på en konferensanläggning i Tällberg för att tillsammans lösa situationen.

– Vårt mål var att hitta lösningar utan att försämra för patienterna. Det var ett jättejobb, men vi lyckades riktigt bra! Det var ett unikt samarbete.

För Reumatologkliniken handlade det om att se över kostnader och prioritera bland prioriteringarna. Det första var att se över läkemedelskostnaderna. Reumatologkliniken var först ut i landet att besluta om att switcha från biologiska originalpreparat till biosimilarer.

– Vi gjorde en switch för våra samtliga patienter på ett läkemedel och det fanns en stor enighet i läkarkåren att göra detta. Kliniken sparade miljonbelopp i läkemedelskostnader. När sedan originalpreparaten sjönk i pris switchade vi tillbaka och sparade återigen stora pengar och slapp minska antalet anställda i en ansträngd ekonomisk situation.

Från slutenvård till REDA

Fram till 2015 hade Reumatologkliniken, som en av få länssjukhus i landet, en slutenvårdsavdelning som stod inför nedläggning. Förslaget var att flytta över vårdplatserna till ortopeden och att klinikens sjuksköterskor skulle följa med.

– Det var väl egentligen ingen som gillade förslaget, särskilt inte sjuksköterskorna som ville vara kvar inom reumatologin. En av våra sköterskor kom då på idén att ortopediska patienter istället skulle flytta till vår avdelning och så blev det. Så på våra nio vårdplatser hade vi tre egna, en vårdplats för hudpatienter och fem för ortopediska patienter.

Alla blev vinnare, menar Tomas Husmark; reumatologiska kliniken fick behålla sin slutenvårdsavdelning och ortopedin slapp skicka sina patienter utanför länet. Miljontals kronor kunde sparas.

Men så i september 2018 lades avdelningen slutligen ned. Pensionsavgångar och vissa svårigheter att rekrytera sjuksköterskor var viktiga faktorer. Dessutom visade en utvärdering att endast ett fåtal av patienterna var i egentligt behov av slutenvård.

– Vi var nog sist ut i landet och nedläggningen var egentligen inget problem för våra reumatologiska patienter. Slutenvårdsavdelningen ersattes av REDA, en dagvårdsverksamhet där vi gör polikliniska utredningar och behandlingar. I huset har vi även ett patienthotell och vi sköter våra patienter lika effektivt och kanske effektivare med den nya REDA-avdelningen.

Forskning och utveckling

Några minuters promenadväg från Reumatologkliniken ligger Centrum för klinisk forskning, inhyst i en äldre överläkarvilla. Det är ett tvärprofessionellt forskningscenter som baseras på ett samarbete mellan Uppsala universitet och Region Dalarna. En av forskarna är Valgerdur Sigurdardottir, specialistläkare i reumatologi.

– *Varannan vecka är jag på kliniken och varannan vecka är jag på Centrum för klinisk forskning. För mig är det viktigt att bedriva forskning, och det är ett av skälen till att jag är kvar i Falun. Jag trivs dessutom väldigt bra på kliniken, det är en väldigt god stämning och vi har en närhet och ett gott samarbete som gör att vi enkelt kan hjälpa varandra.*

Hennes forskningsområde är gikt, den vanligaste inflammatoriska ledsjukdomen. Handledare är Mats Dehlin och Lennart Jakobsson vid Göteborgs universitet.

– *Jag har kommit halvvägs i mitt avhandlingsarbete och bedriver epidemiologisk forskning där jag tittar på riskfaktorer för gikt samt effekterna på samhället. Det tycks vara så, utifrån vad jag kan se i min forskning, att det finns vissa yrkesgrupper som är särskilt utsatta. Det handlar bland annat om anställda inom byggnads- och textilbranschen och att inandning av damm tycks öka den framtida risken att utveckla gikt.*

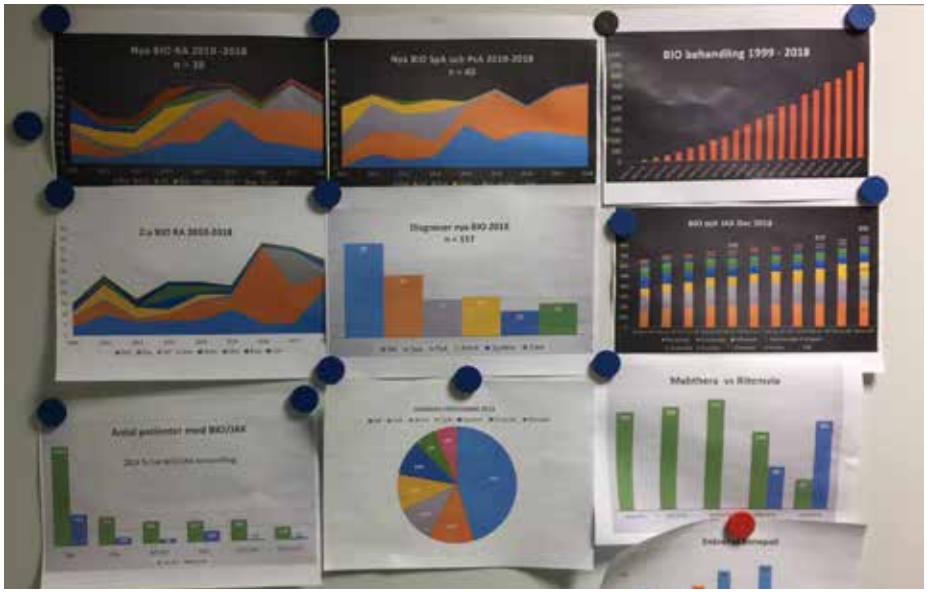
Flera av klinikens specialistläkare är forskningsaktiva och Reumatologkliniken deltar i ett flertal studier, exempelvis NORDSTAR-studien som utvärderar fyra olika behandlingsstrategier vid nydebuterad RA. Kliniken deltar även i den så kallade SPACE-studien som omfattar patienter med tidig spondylartrit och inkluderar 600 patienter totalt i Europa. En tredje studie är PROOF, en global studie med över 2 600 patienter som inkluderar patienter med axial spondylartrit.

Full koll

Varje år tar kliniken emot drygt 3 000 patienter. Tillgängligheten är god och väntetiden för nybesök har under 2018 legat inom ramen för vårdgarantin. Även när det gäller den medicinska behandlingen ligger kliniken i Falun i topp vad gäller inflammationskontroll.

– För de största sjukdomsgrupperna RA, psoriasisartrit och inflammatorisk ryggsjukdom har en betydande majoritet av våra patienter låg eller ingen sjukdomsaktivitet, enligt data från SRQ. Vi ligger också bra till vad gäller täckningsgrad vid RA, som är nära nog 100 procent. Jämfört med riket har vi också en högre andel patienter med låg sjukdomsaktivitet efter insatt biologisk behandling, säger Tomas Husmark.

Valgerdur Sigurdardottir, specialist i reuamtologi och forskare vid Centrum för klinisk forskning i Falun. Hennes avhandlingsarbete handlar om gikt och hon är knuten till Göteborgs universitet.



Viktiga framgångsfaktorer, menar han, är självständigheten och möjligheterna att fatta egna beslut. Vid kliniken finns ett stort intresse av verksamhetsutveckling och att hålla koll på processer och resultat. För fyra år sedan vid Reumadagarna i Tylösand fick kliniken pris för bästa poster för ett utvecklingsarbete som initierats av Jörgen Lysholm, specialist i reumatologi och verksam vid kliniken sedan 1983. Arbetet handlar om utvecklingen av en algoritm som hjälper till att identifiera patienter med RA och som har behov av rehabilitering de första åren efter sjukdomsdebut. I dag är algoritmen integrerad i SRQ.

– *Det är ett arbete som bygger på att man har och kan hantera registerdata. Jörgen Lysholm har arbetat intensivt med detta under många år. I samband med den så kallade vioxx-skandalen 2004 var vi särskilt tacksamma att vi hade tillgång till bra data. Det innebar att vi snabbt kunde agera och identifiera de patienter som stod på läkemedlet.*

Tomas Husmark ser med spänning på den fortsatta utvecklingen inom reumatologin och understryker samtidigt vikten av tillgång till fortbildning och kompetensutveckling bland reumatologer.

– I framtiden, om fem år och framåt, tror jag att vi kommer att få se en fortsatt utveckling av nya läkemedel för flera av de vanligaste inflammatoriska sjukdomarna. Perorala läkemedel som exempelvis JAK-hämmare, kommer troligtvis att dominera behandlingen av artritsjukdomar, medan infusionsbehandlingar blir mindre vanligt förekommande. En större behandlingsarsenal kommer att innebära ett ännu liv för våra patienter.

Eva Nordin
Journalist

ANNONS

Presentation av årets program och föreläsare

I september är det dags för årets Reumadagar i Falun. Programmet består av två parallella program, ett medicinskt och ett vårdvetenskapligt med 3 symposier i vardera. Temat för det medicinska programmet är spondartriter med en fläkt av gikt. Det vårdvetenskapliga temata är self-management, sex och samlevnad samt effektiv rehabilitering. Till detta kommer guldsponsorernas lunch- och förmiddagssymposier som berör olika aspekter av RA.

Med detta breda utbud hoppas vi i den vetenskapliga organisationskommittén att alla skall hitta några godbitar att ta med sig hem. Symposierna kommer till stor del att hållas på engelska eftersom vi har många utländska föreläsare.

Nanna Svartz-föreläsningen

Som årets Nanna Svartz-föreläsare är vi mycket stolta över att kunna annonsera Kate Lorig. Hon har under många år arbetat med self-efficacy, vilket kan definieras som en persons tilltro till sin förmåga att utföra en given handling eller att ändra på ett givet tankemönster.

Enligt self-efficacy-modellen är det främst tilltro till förmågan, inte förmågan i sig, som har betydelse för en persons handlingar. När en patient gör en ny aktivitet eller livsstilsförändring är det alltså patientens egen tilltro till att klara av förändringen som har betydelse, inte patientens faktiska förmåga att utföra förändringen. I Lorigs patientutbildningsprogram stärks self-efficacy genom fyra olika strategier – bemästring, förebilder, social övertalning och fysiologisk feedback.

Professor emerita Kate Lorig, Stanford University School of Medicine. *Lorig works part time on a rheumatology practice where she among other things, work on an opioid reduction project. For the past 40 years she has designed, evaluated and put into practice community based self-management programs for people with arthritis, chronic conditions, pain, diabetes and cancer survivors. These programs are now used in 30 countries and reach about 100,000 people a year. The programs have been shown to improve symptoms such as pain and depression while reducing health care utilization.*

Öppningsföreläsning

Kardiovaskulär sjukdom hos patienter med reumatisk sjukdom. Ett dåligt samvete och ett eftersatt ämne.

Årets öppningsföreläsning som hålls av Johan Ärnlöv syftar till att ge reumatologen ett perspektiv på hur man kan navigera i det kardiovaskulära landskapet hos patienter med reumatiska sjukdomar. Hur identifierar man på bästa sätt de patienter som har mest nytta av farmakologisk behandling från de där man kan avstå behandling? Johan Ärnlöv kommer att diskutera utmaningarna med riskbedömning och ge handfasta råd som förenklar handläggningen av dessa patienter i vår kliniska vardag.

Johan Ärnlöv, professor i allmänmedicin vid Karolinska Institutet och allmänläkare vid Norslunds vårdcentral i Falun. *Ärnlöv har en bred erfarenhet av forskning inom kardiovaskulär epidemiologi och har publicerat över 300 vetenskapliga artiklar, varav flera i världsledande tidskrifter. Ärnlövs forskning de senaste åren har syftat till att få en bättre förståelse för det farliga samspelet mellan njuren och hjärt-kärlsystemet.*

Medicinskt Temasymposium I – AS

Detta symposium handlar om metoder att kunna förutsäga svar på behandling med TNF-hämmare, och om vi kan förhindra strukturella förändringar vid SpA, aktuella och angelägna problem. Sofia Ramiro belyser ”Inhibition of structural damage remains a hot topic in SpA. Whether or not the current available interventions we have can achieve such an outcome is not yet fully clear, and the challenges related to this will be discussed in this lecture. More data has come out to help us gain more insight into the complex relationship between disease activity and structural damage and the effect of therapy on it. Sofia will talk about the implications of this outcome for the individual patient.” Lena Öhman berättar sedan om sina erfarenheter av att utveckla ett diagnostiskt test som predikterar anti-TNF terapi respons före behandlingsstart hos patienter med kronisk inflammatorisk tarmsjukdom (IBD). I ett pågående forskningsprojekt studerar vi om det diagnostiska testet kan prediktera anti-TNF terapi respons även hos patienter med RA.

Sofia Ramiro, MD, Msc, PhD, is a rheumatologist and a senior researcher at Leiden University Medical Center and Zuyderland Medical Center, the Netherlands. *Sofia Ramiro graduated from Medical School in the Nova Medical School, Portugal. She completed a Master in Epidemiology at Maastricht University and obtained her PhD on long-term outcomes in ankylosing spondylitis at the University of Amsterdam. She is a clinical epidemiologist and her research focuses in axial spondyloarthritis (axSpA), rheumatoid arthritis (RA), imaging and outcomes research. Sofia Ramiro has an appointment at Nova Medical School in Lisbon as a Visiting Professor. She served as a Chair for EMEUNET, and is now a member of the Executive Committee of the Assessment of Spondyloarthritis international Society (ASAS) and a member of the EULAR Scientific Committee. Sofia Ramiro has authored more than 130 peer-reviewed manuscripts.*

Docent Lena Öhman vid avdelning för mikrobiologi och immunologi, Göteborgs Universitet *studerar hur samspelet mellan immunförsvar och tarmbakterier påverkar patogenesen hos patienter med kronisk inflammatorisk tarmsjukdom (IBD). Forskningen har särskilt fokus på att identifiera biomarkörer som predikterar sjukdomsförlopp och terapirespons vid IBD.*

Vårdvetenskapligt Temasymposium I: SELF MANAGEMENT

Tron kan försätta berg. Att tro att man kan är enormt viktigt för alla människor oavsett om man är i professionen eller om man är patienten. Detta gäller också att ha kunskap: kunskap om sjukdomar och kunskap om sin sjukdom och sin egen kropp. I detta symposium får vi lyssna på tre föreläsare med mångårig erfarenhet av både patientutbildning och self-management. Christina Opava kommer att inleda med att berätta om Eulars rekommendationer kring patientutbildning. Kate Lorig fyller på med self-management och sitt arbete kring att öka detta hos personer med kroniska sjukdomar. Beryl Svanberg kommer att avsluta med att redogöra för Reumatikerförbundets arbete med patientutbildningar om smärta och artros som de genomfört sen 2008 och vi kommer att få veta hur de är uppbyggda, samverkan med primärvården, antal personer som deltar i skolorna och vilken nytta deltagarna upplever av utbildningarna.

Christina H. Opava är legitimerad fysioterapeut/sjukgymnast med specialistexamen i reumatologisk fysioterapi/sjukgymnastik och har en förenad anställning som professor vid Karolinska Institutet, Sektionen för fysioterapi vid Institutionen NVS och Karolinska universitetssjukhusets reumatologiska klinik. *Hon leder en forskargrupp med inriktning på fysisk aktivitet och hälsa vid reumatisk sjukdom. Är direktor för Strategiska forskningsområdet vårdvetenskap vid KI/Umeå universitet samt Foreign Adjunct Professor vid Dr. APJ Abdul Kalam College of Physiotherapy, Pravara Institute of Medical Sciences, Loni, Indien.*

Beryl Svanberg. *Reumatikerförbundet har skapat och håller utbildningar i två patientskolor dels Artrosskolan och Smärtskolan. I patientskolorna deltar utbildade informatörer som föreläser om hur det är att leva med artros respektive långvarig smärta. Beryl var projektledarassistent när artrosskoleprojektet startades och är nu samordnare för både Artros- och Smärt-informatörerna i Bohuslän. Hon representerar Reumatikerförbundet och deltar i att utbilda vårdpersonal i att hålla smärtskolor samt utbildar andra artros- och smärtinformatörer.*

Medicinskt Temasymposium II – GOUT

Gikt är en vanlig sjukdom. Det finns läkemedelsbehandling som fungerar bra och som inte kostar speciell mycket och ändå är det bara en minoritet av patienter med gikt som får adekvat behandling.

I Storbritannien har professor Michael Doherty testat en modell med sjuksköterskeledd mottagning för patienter med gikt som varit mycket framgångsrik.

Anna Svärd och kollegor har nu startat ett projekt där de undersöker förutsättningarna för ett liknande upplägg i svensk primärvård.

Michael Doherty will present his community-based 2 year Randomized Control Trial, which showed that nurse-led care, involving full patient information and engagement and treat-to-target urate-lowering treatment (ULT), resulted in very high ULT uptake and achievement of the serum urate target (<360 μmol/L) in 95% of patients, with subsequent reduced flare frequency, reduced tophi, and improved quality of life. Compared to usual care the intervention was cost-effective at 2 years, and modelled to be cost-saving at 5 years.

Other notable findings include: correlation between serum urate levels and clinical outcomes; a mean required dose of 400-500 mg/day allopurinol to achieve target; low uptake of prophylaxis; and no issues for allopurinol and chronic kidney disease.

Endast en minoritet av personer med hyperurikemi utvecklar gikt, därför måste det finnas andra, hittills okända, faktorer som utlöser sjukdomen. Dessa faktorer kan vara relaterade till omgivningen eller till arbetsmiljön. Oorganiskt damm har länkats till inflammatoriska reumatiska sjukdomar såsom reumatoid artrit, men man har aldrig tidigare studerat om det kan utlösa gikt.

I en registerstudie har Vala Sigurdardottir jämfört en kohort av giktpatienter med matchade befolkningskontroller och funnit att exponering för damm i yrkeslivet är associerat till incident gikt.

Avslutningsvis berättar Mats Dehlin om epidemiologi vid gikt: Gikt är den vanligaste inflammatoriska artritsjukdomen med en prevalens på 1-4% världen över. Sjukdomen orsakar smärta, lidande och handikapp för den enskilda individen och leder till ökande kostnader för sjukvård och sjukersättning

***Michael Doherty is Professor of Rheumatology and Head of Academic Rheumatology, University of Nottingham**. His research interests are osteoarthritis (OA), gout, calcium pyrophosphate crystal deposition (CPPD), pain, placebo/contextual response and evidence based medicine. He has expertise in clinical and epidemiological studies, clinical trials, systematic reviews and meta-analyses. He has over 350 original publications and was awarded the OA Research Society International (OARSI) Clinical Research Award for 2012. He is a past editor of Annals of the Rheumatic Diseases (1992-99), has co-convened EULAR Recommendations for OA, gout and CPPD, and has been a clinical expert in NICE appraisals for OA and gout.*

***Anna Svärd är Med Dr och överläkare i reumatologi i Falun** och har forskningsmässigt främst ägnat sig åt reumatoid artrit och slemhinnornas roll i patogenesen. De senaste åren har hon allt mer intresserat sig för forskning kring gikt, tillsammans med doktorand Vala Sigurdardottir i Falun samt professor Lennart Jacobsson och docent Mats Dehlin i Göteborg.*

***Vala Sigurdardottir är specialistläkare vid Reumatologkliniken i Falun och doktorand vid Sahlgrenska Akademin, Göteborgs Universitet.** Avhandlingsarbetet handlar om riskfaktorer för gikt och giktsjukdomens effekter på individ och samhälle.*

***Mats Dehlin är överläkare och docent på Sahlgrenska Universitetssjukhuset, Göteborg** och ägnar sig åt epidemiologisk forskning vid Sahlgrenska Akademin. Hans forskning fokuserar på gikt och försöker besvara frågor kring omhändertagande, riskfaktorer, samsjuklighet och konsekvenser av sjukdomen. Mats Dehlin deltog i framtagandet av de första svenska riktlinjerna för gikt från Läkemedelsverket 2016.*

Vårdvetenskapligt Temasymposium II: SEX & SAMLEVNAD

Vårdvetenskapliga programmets Temasymposium ll - SEX & SAMLEVNAD kommer att börja med en presentation av Sara Hjalmarsson och Mathilda Björk med titeln ”Inte ens en fråga om sexlivet – det är värdelöst!”. Mathilda kommer att presentera forskning kring hur dagens patienter upplever att deras intima relationer påverkats efter att de diagnosticerades med RA och Sara, som är forskningspartner, kommer att berätta hur personer med reumatisk sjukdom skulle vilja att reumatologin tar sig an frågan.

Tillsammans kommer de att presentera en arbetsmodell för sexuell hälsa som skapats i nära samarbete med kliniker och patienter.

Därefter kommer Helena Cewers hålla sin presentation ”Har du lust att ha lust?” där vi kommer att få veta hur man kan ta upp ämnet och även tips och tricks som man kan inkludera i sin kunskapsbank i mötet med personer med reumatisk sjukdom.

***Sara Hjalmarsson** har egen erfarenhet av reumatisk sjukdom sedan fyra års ålder. Under tio år var hon ordförande i Riksorganisationen Unga Reumatiker och under femton år ledamot i Reumatikerförbundets styrelse. Sara är utbildad Forskningspartner sedan 2008 och är involverad i flera olika forskningsprojekt. Sara är leg. arbetsterapeut sedan 1994 och arbetar sedan 2008 som ombudsman på Astma- och Allergiföreningen i Östergötland.*

***Mathilda Björk är professor i arbetsterapi vid Linköpings universitet samt Universitetssjukhuset i Linköping**. Hon har en mångårig erfarenhet av funktionshinderforskning och kliniskt arbete inom såväl reumatiska sjukdomar som långvarig smärta. Hennes forskningsområde är specifikt inriktat mot möjligheter att kunna utföra de aktiviteter man önskar trots en kronisk sjukdom samt interventioner för återgång i en hållbar arbetssituation för personer med långvarig smärta eller reumatisk sjukdom. Mathilda har flera internationella samarbeten, är ledamot i såväl europeiska samt nationella forskningsråd och nämnder och är en ofta anlitad föreläsare inom rehabilitering och arbetsterapi vid reumatiska sjukdomar och långvarig smärta.*

***Helena Cewer, leg barnmorska sedan 50 år och auktoriserad klinisk sexolog i snart 40 år.** Lång erfarenhet att arbeta med par/enskilda personer kring sexualitet. Fortfarande verksam ett par dagar i veckan med att ha sexologmottagning i Malmö. Har under alla dessa år föreläst runt om i Sverige för både allmänheten, vårdpersonal och diverse utbildningar och sex, kärlek och relationer. Nu mycket föreläsningar om den mogna kärleken 50+.*

Medicinskt Temasymposium III: PsA

Psoriasisartrit – det är inte samma sak som RA, men vad är det? Hänger artritsjukdomen ihop med patologin i huden? Hur behandlar man och hänger vikten ihop med sjukdomsaktiviteten? Under tre föreläsningar kommer dessa ämnen att belysas.

First Laura Coates, who will review data on emergent therapies for psoriasis and PsA and discuss how they may fit into the future treatment of psoriatic disease. She will highlight differential efficacy in different domains of disease. She will review the current evidence for advancing therapeutic strategies in PsA including the use of a treat-to-target approach, sequencing of therapies and the potential for personalised selection of therapies in the future.

Därefter kommer Liv Eidsmo att dela med sig om sina djupa kunskaper om immunologi, hud- och ledpatologi vid psoriasis och PsA.

Symposiet avslutas med Eva Klingberg som berättar om sin studie avseende viktminskning vid PsA: Övervikt är mer än en oskyldig ”åskådare” vid PsA. Övervikten i sig ökar risken att utveckla både psoriasis och PsA, och dessutom så har ofta överviktiga PsA patienter högre sjukdomsaktivitet och svarar sämre på behandling. Presentationen sammanfattar några av de patofysiologiska mekanismerna som länkar övervikt till PsA och kommer också att diskutera hur viktreduktion kan användas som ett terapeutiskt verktyg vid behandling av PsA.

***Laura Coates, Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences, University of Oxford, UK**. Laura is an NIHR Clinician Scientist whose research focuses*

on optimal therapeutic strategies in psoriatic arthritis (PsA). Her PhD focused on the development of the minimal disease activity criteria for PsA and establishment of the TICOPA trial, the first study to show the benefit of treating to target in PsA. Her research is clinical and focuses on psoriatic arthritis and the spondyloarthritides including early diagnosis of PsA, development of PsA specific and validated outcome measures, optimal treatment pathways and strategies in PsA. She is a member of the GRAPPA Steering Committee and the chair of the British PsA Consortium (BritPACT).

Liv Eidsmo är docent i dermatologi och venerologi på Karolinska Institutet och leder en forskargrupp på Center för Molekylärmedicin (CMM) parallellt med kliniskt arbete som hudläkare på Karolinska Sjukhuset och Psoriasisföreningens. *Forskningen fokuserar på hudens T celler, från basala studier av den friska huden till studier av T cellers roll i de lokala sjukdomsminnen som skapas i huden vid psoriasis, och som leder till att psoriasisfläckar återkommer inom samma områden efter effektiv behandling.*

Eva Klingberg, överläkare och docent, Sahlgrenska Universitetssjukhuset, Göteborg. *Utöver kliniskverksamhet har Eva också haft flertalet undervisningsuppdrag inkluderande kandidatansvar och ST-studierektorskap. Avhandling handlade om AS, osteoporos och osteoproliferation och forskningen har fortsatt på detta spår med mer AS, tarminflammation och tarmflora, D-vitamin, psoriasisartrit och kardiovaskulära riskfaktorer, fetma och viktminskningsbehandling. Eva är VGRs representant i NPO och ansvarar även för klinikens forskningsenhet, Kliniskt Reumatologiskt Forskningscentrum.*

Vårdvetenskapligt Temasymposium III: EFFEKTIV REHABILITERING

Vid symposiumet ”EFFEKTIV REHABILITERING” kommer docent och fysioterapeut Nina Brodin att presentera 2018 års EULAR riktlinjer för fysisk aktivitet vid reumatoid artrit, spondylartrit, samt knä- och höftartros. Riktlinjerna bygger på en systematisk litteraturöversikt och ett konsensusförfarande för att komma fram till tio rekommendationer. Symposiet kommer att belysa såväl rekommendationerna och arbetet som ledde fram till dessa, samt en forsknings- och utbildningsagenda inom området. Ulrika Bergsten, Fil Dr och sjuksköterska, kommer att presentera vilket mervärde och vetenskapligt stöd det finns för sjuksköterskeledd-mottagning samt hur personcentrerad filosofi kan vara utgångspunkten i mötet med patienten. Det vetenskapliga stödet kommer att vara utifrån reumatikervården men även inkludera annan sjuksköterskeledd mottagning och dess eventuella skillnader/likheter. Sessionen avslutas med att Li Alemo Munters, Med Dr och forskningschef på Reumatikerförbundet, kommer att presentera resultatet av Reumatikerförbundets enkät om rehabilitering. Hon kommer också att redovisa reumatikers behov av olika rehabiliteringsinsatser, teamrehabilitering och klimatvård. Även reumatikers upplevelse av hur effektiva rehabiliteringsbehandlingar är och hur behovet av rehabilitering tillgodoses av vården kommer att presenteras i sessionen.

Nina Brodin är docent i fysioterapi vid Karolinska Institutet samt Danderyds Sjukhus. *Hon har en mångårig erfarenhet av forskning kring fysisk aktivitet vid inflammatorisk reumatisk sjukdom och arbetar även kliniskt med fysioterapi inom reumatologi. Hennes forskningsområde är inriktat mot olika aspekter av fysisk aktivitet vid reumatisk sjukdom och omfattar både intervjustudier, registerbaserad forskning, mätmetodutveckling, hälsoekonomi och studier av hälsoprofessioners arbetssätt avseende fysisk aktivitet. Nina har flera nationella och internationella samarbeten och föreläser och utbildar ofta inom träning vid reumatisk sjukdom.*

Ulrika Bergsten har arbetat som sjuksköterska i 30 år och började intressera sig för forskning under sin tid på Spenshult *– Reumatikersjukhuset som låg mitt i Halland. Ulrika har tidigt varit nyfiken på hur de människor hon träffar tänker och funderar kring sin sjukdom. Genom att öka kunskapen kring patientens perspektiv kan vi förbättra omvårdnaden. Idag arbetar Ulrika som FoU handledare i Region Halland och handleder forskningsprojekt från väldigt skiftande miljöer men med fokus på patientnära kliniska projekt.*

Li Alemo Munters disputerade 2013 vid Institutionen för Medicin, Enheten för Reumatologi, Karolinska Institutet, KI, *med avhandlingen ”Physical exercise as a targeted therapy in idiopathic inflammatory myopathies”. Hon har arbetat inom reumatikervård som fysioterapeut i 20 år på Karolinska Universitetssjukhuset och är anställd på Reumatikerförbundet som forskningschef sedan 2017. Efter disputation och som postdoc vid Division of Immunology och Rheumatology, Vanderbilt University, Nashville, TN, USA, har hon forskat om effekt av fysisk träning vid myosit, hur muskler påverkas vid inflammatorisk reumatisk sjukdom och fibromyalgi samt utvärdering av patientpreferenser vid reumatikervård. Li har haft och har flera nationella och internationella uppdrag och samarbeten och föreläser och utbildar inom framförallt fysisk träning vid inflammatorisk reumatisk sjukdom och patientpreferenser.*

FÖRETAGSSYMPOSIER:

LUNCHSYMPOSIUM ELI LILLY: Rheumatic disorders are still causing pain

Pain mechanisms in rheumatic disease
Camilla Svensson:
Pain is one of the most challenging symptoms for patients with rheumatoid arthritis (RA). RA pain may start even before the disease manifests, and does not always correlate with the degree of inflammation. In this aspect, animal studies have the potential to provide new insights into the pathology that initiate and maintain pain in RA.

Camilla Svensson är professor i molekylär och cellulär smärtfysiologi på Karolinska Institutet (KI). *Hon avlade sin doktorsexamen i patologi med fokus på spinala smärtmekanismer vid University of California, San Diego och gjorde sedan en postdoc i reumatologi vid samma universitet. Sedan 2009 är hon gruppledare på Institutionen för farmakologi och fysiologi på KI, och bedriver där grundforskning centrerad kring smärta i reumatiska sjukdomar som reumatoid artrit och fibromyalgi. Hon är speciellt intresserad av autoantikroppars roll i långvarig smärta och har utvecklat translationella modeller som visar att immunsystemet kan påverkar smärtsystemet även i frånvaro av klassiska inflammatoriska processer.*

Pain management in rheumatology (with focus RA and PsA)
David Walsh: Pain in RA and PsA may be due to joint inflammation, augmented by central sensitization and joint damage. Noninflammatory pain mechanisms may confound the assessment of disease activity in arthritis. Treatment should aim to both suppress inflammatory disease and relieve pain symptoms. Treatment requires a full assessment of pain mechanisms by clinical history and examination, as well as objective assessment of synovitis and joint damage.

David Walsh is Professor of Rheumatology at the University of Nottingham and Consultant Rheumatologist at Sherwood Forest Hospitals NHS Foundation Trust. *In 2010 he established the Arthritis Research UK Pain Centre in Nottingham, together with a multidisciplinary research team which includes preclinical neurosciences, psychology, neuroimaging, orthopaedics, genetics, epidemiology and evidence synthesis. The Centre aims to develop new and improved treatments through a translational research programme into the mechanisms by which changes within the joint and in the nervous system interact with psychosocial factors to produce arthritis pain.*

FÖRMIDDAGSSYMPOSIUM BMS: The multidisciplinary challenge of lung involvement in Rheumatoid arthritis

Torkell Ellingsen who is clinical professor and head of research at the Rheumatology Research unit at the department of Rheumatology, Odense University Hospital, *will discuss a multidisciplinary setting for diagnosing and treating lung diseases in rheumatoid arthritis. The Ellingsen group has focused the research in the recent years on the role of comorbidities and microbiota in relation to especially inflammatory arthritis, and consists presently of 6 students, 14 PhD-students and 5 part time postdocs and publish approximately 50 peer reviewed papers yearly. https://www.sdu.dk/da/Om_SDU/Institutter_centre/Klinisk_institut/Forskning/Forskningsenheder/reumatologi*

FÖRMIDDAGSSYMPOSIUM ABBVIE: Patienten versus Vården – ett symposium i 3 ronder

Elsa är ett digitalt verktyg för patienter med RA som är samskapat av patienter, vård och forskare. Med Elsa ges patienten möjlighet att ta ett större ansvar och öka sin kunskap om sin sjukdom. Initiativtagarna till Elsa är forskare och reumatologer från Karolinska Institutet, designers, utvecklare och andra med lång erfarenhet av digitala tjänster i vården.

AbbVie samarbetar idag med Elsa Science AB kring en läkemedelsmodul som erbjuder stöd och information.

Elsa Science AB kommer att förklara nyttan med verktyg som driver på kunskap, bidrar till forskning och i slutändan bidrar till färre och friskare personer med kronisk sjukdom.

Inger Gjertsson
Vetenskaplig sekreterare SRF

Svensk Reumatologisk Förening kallar till Årsmöte 12.9.2019

Mötet äger rum i anslutning till Reumadagarna torsdagen den 12 september 2019 kl. 17:00 på Lugnetkyrkan konferens, Falun. Agendan för mötet och samtliga bilagor hittas på http://svenskreumatologi.se/arsmote2019/.

ANNONS

Program Reumadagarna, 11–13 september 2019 i Falun

Onsdag 11 september

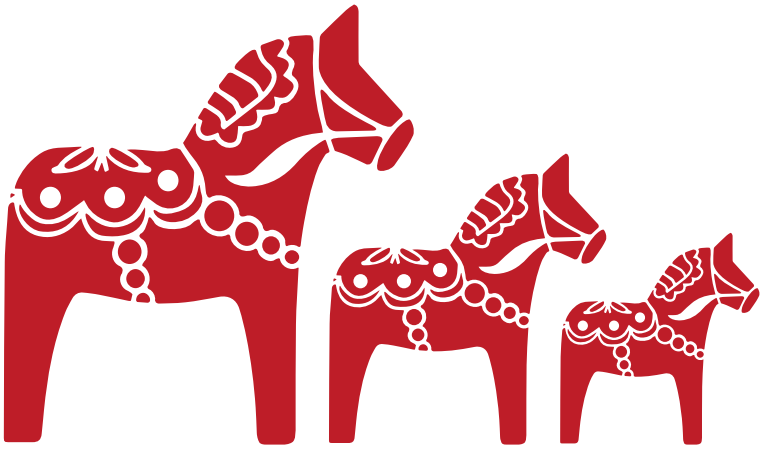
08:00-12:00	**Tid för grupper**	**09:15-10:30**	**Precourse på Falu lasarett** Ledstatus – fördjupa din teknik och kunskap vid ledundersökning Reumatologer från kliniken i Falun medverkar Arrangör: Fysioterapeuternas sektion för reumatologi
	Gemensamt program – Kyrkan		
12:00-13:00	**Lunchsymposium Eli Lilly** Rheumatic disorders are still causing pain Camilla Svensson – ”Pain mechanisms in rheumatic disease” David Walsh – ”Pain management in rheumatology (with focus RA and PsA)”		
	Kortare paus		
13:20-13:30	**Falun hälsar välkommen**		
13:30-14:15	**Öppningsföreläsning** Johan Ärnlöv – ”Risk eller frisk? Kardiovaskulär prevention vid reumatisk sjukdom” Moderator: Tomas Husmark		
14:15-15:00	**Värdsymposium** Vem vet mest? Läkargruppen i Falun		
15:00-15:30	**Eftermiddagsfika i utställningen**		
15:30-16:45	**Stipendieutdelning med föredrag** Moderatorer: Inger Gjertsson och Cecilia Carlens AbbVie & SRF, Eli Lilly & SRF, Novartis & FRS Nanna Svartz med Reumatikerförbundet & Pfizer Presentation av guldsponsorerna		
16:45-18:15	**Mingel och tipsrunda i utställningslokalen – fin vinst står på spel!**		
19:00	**Kongressmiddag i Dalasalen**		

Torsdag 12 september

06:00-06:45	**Löprunda**	
	Medicinskt program – Kyrkan	**Vårdvetenskapligt program – Skolan**
08:00-09:30	**Temasymposium I – AS** Sofia Ramiro – ”Can we inhibit radiographic progression in axSpA, and what does it mean for the patient?” Lena Öhman – ”Prediction of anti-TNF therapy; lessons to be learned from patients with inflammatory bowel disease (IBD)?” Case Moderatorer: Lennart Jacobsson & Christopher Sjöwall	**Temasymposium I – SELF MANAGEMENT** (seminariet går på engelska) Christina Opava – ”EULAR´s guidelines on patient education” Kate Lorig – ”Self management in patients with rheumatic diseases” Beryl Svanberg – ”Reumatikerförbundet – patient education” Moderator: Åsa Lindkvist
09:15-09:45	**Kortare paus**	
09:45-10:30	**Förmiddagssymposium BMS** Torkell Ellingsen – ”The multidisciplinary challenge of lung involvement in Rheumatoid arthritis” Moderator: Carl Turesson	
10:30-11:00	**Förmiddagsfika i utställningen**	
11:00-12:30	**Temasymposium II – GOUT** Michael Doherty – ”Efficacy of nurse-led care, involving patient education and engagement and a treat-to-target urate-lowering strategy, versus usual care for gout” Anna Svärd – ”Nurse-led care, prevalences and prescription of urate-lowering therapy in Dalarna” Vala Sigurdardottir – ”Does dust give you gout?” Mats Dehlin – ”The consequences of gout - mortality, hospitalization and sick leave” Moderatorer: Meliha Kapetanovic & Vala Sigurdardottir	**Temasymposium II – SEX & SAMLEVNAD** Sara Hjalmarsson & Mathilda Björk – ”Inte ens en fråga om sexlivet – det är värdelöst!” Helena Cewers – ”Har du lust att ha lust?” Moderator: Malin Regardt
12:30-13:15	**Stående, enkel mingel-lunch**	
13:15-13:45	**SRQ Vetenskap** Moderatorer: Lotta Ljung & Ralph Nisell	
13:45-15:15	**Postersession** Eftermiddagsfika i utställningen	
15:15-16:00	**De 6 bästa postrarna utses** Bästa abstracts	
16:00-17:00	**Axplock avhandlingar**	**Axplock avhandlingar**
17:00-18:00	**SRF:s Årsmöte** Utdelning av årets ledstjärna och årets hedersmedlem	
19:00	**Tid för föreningarnas egna sociala program**	

Fredag 13 september

06:00-06:45	**Löprunda**	
	Medicinskt program – Kyrkan	**Vårdvetenskapligt program – Skolan**
08:00-09:30	**Temasymposium III – PsA** Laura Coates – ”New treatments and therapeutic strategies in PsA” Liv Eidsmo – ”Does the skin mirror the joints?” Eva Klingberg – ”Psoriatic arthritis, obesity and weight loss treatment” Moderatorer: Eva Klingberg & Kristina Juneblad	**Temasymposium III – EFFEKTIV REHABILITERING** Nina Brodin – ”EULAR:s nya riktlinjer för fysisk aktivitet” Ulrika Bergsten – ”Sjuksköterskeledd vård” Li Alemo Munters – ”Patienters behov av rehabilitering” Moderator: Mathilda Björk
09:30-09:45	**Kortare paus**	
09:45-10:30	**Förmiddagssymposium AbbVie** Patienten vs Vården – ett symposium i 3 ronder AbbVie i samarbete med Elsa Science AB	
10:30-11:00	**Förmiddagsfika i utställningen**	
11:00-12:10	**Nanna Svartz-föreläsning** Kate Lorig Moderator: Inger Gjertsson Tack och välkommen till Stockholm 2020	
12:10-12:30	**Lunch Grab n' Go**	
12:30	**Tid för grupper**	



ANNONS

Reumadagarna 2019 - Abstracts

Artritsjukdomar

1 RHEUMATIC IMMUNE-RELATED ADVERSE EVENTS IN PATIENTS TREATED WITH IMMUNE CHECKPOINT INHIBITORS AT SAHLGRENSKA UNIVERSITY HOSPITAL: CLINICAL CHARACTERIZATION AND POSSIBLE ASSOCIATED T CELL PROFILES

Kontaktinformation: Nellie Fischer, nellie.fischer@vgregion.se

Nellie Fischer[1], Kerstin Andersson[1], Sara Bjursten[2], Max Levin[2], Inger Gjertsson[1], Anna Carin Lundell[1], Anna Rudin[1]

[1] Department of Rheumatology and Inflammation Research, Sahlgrenska Academy of University of Gothenburg, Sweden
[2] Department of Molecular and Clinical Medicine/Wallenberg Laboratory, Institute of Medicine, Sahlgrenska Academy of University of Gothenburg, Sweden

Background
Immune checkpoint inhibitors (ICIs) that target PD-1 on T cells have improved survival in metastatic malignant melanoma (mMM) and non-small cell lung cancer (NSCLC). ICI-treatment results in rheumatic immune-related adverse events (IRAEs), such as inflammatory arthritis and polymyalgia rheumatica (PMR) in about 10%. Since ICIs give rise to new rheumatic manifestations, Rheumatology clinics in Sweden lack experience in identification and management of this new group of patients. We do not know to what extent alterations of specific T cell subsets are related to rheumatic IRAEs and if the T cell profiles change during anti-rheumatic treatment.

Aims
To asses rheumatic IRAEs and the outcome of treatment in ICI-treated patients, and to investigate possible ICI-associated T cell profiles.

Material & Methods
We include patients who develop rheumatic IRAEs related to ICI treatment. The patients are referred to a new specialized outpatient care in Rheumatology, from Oncology at Sahlgrenska University Hospital. We collect data of symptoms, of laboratory tests and of treatment. Blood samples are being collected prospectively to analyze T cell subsets by flow cytometry and compared with age- and sex-matched controls (HC).

Results
In the first six months, Sept 2018 to March 2019, ten new patients have been evaluated. Of these, six patients had new rheumatic symptoms. One patient presented with sicca syndrome, negative for SSA/SSB and salivary gland biopsy. Four patients presented with RF- and ACPA-negative polyarthritis with joint tenderness and swelling, and elevated ESR and CRP. One patient presented with PMR, with arthralgia, ESR >50, and ultrasound of shoulders showing minimal signs of subdeltoid bursitis. Three patients received prednisolone only (polyarthritis n=2, PMR n=1), one patient methotrexate and prednisolone (polyarthritis), and one patient a combination therapy with prednisolone, methotrexate and TNF inhibitor (polyarthritis). The patient with sicca syndrome and one patient with polyarthritis were not in need of continued follow-up by the Rheumatology clinic. So far, T cell subsets have been analyzed in three patients, and all present a complete PD-1 deficiency in CD4+ and CD8+ memory T cells, while the memory T cell pool comprised approximately 50% of PD-1 expressing cells in HC. Interestingly, in the patient who needed TNF-inhibitor due to severe polyarthritis despite discontinued ICI-treatment for 6 months, the deficiency in PD1+ T cells remained.

Conclusions
Despite presenting with symptoms typical for Sjögren´s syndrome or rheumatoid arthritis, all patients lacked specific autoantibodies. This indicates that the immunological mechanisms for rheumatic IRAEs differ from those of classical rheumatological diseases. The observed persistent reduction in PD-1 expression on T cells in the patient with severe polyarthritis indicates a possible mechanistic role for PD-1 in rheumatic IRAEs, which needs to be evaluated in a larger material

2 INCREASED RISK OF LEISHMANIASIS IN PATIENTS ON IMMUNOMODULATORY TREATMENT

Kontaktinformation: Ann-Marie Calander, ann-marie.calander@vgregion.se

Ann-Marie Calander[1], Helena Hammarström[2], Leif Dotevall[3]

[1] Department of Rheumatology and Inflammation Research, Sahlgrenska Academy University of Gothenburg, Gothenburg
[2] Department of Infectious Diseases, Sahlgrenska Academy University of Gothenburg, Gothenburg
[3] Department of Communicable Disease Control, Region of Vastra Gotaland

Leishmaniasis has an estimated global prevalence of 12 million cases and an incidence of about 1.3 million cases per year. This vector-borne infection is caused by the protozoan parasite Leishmania and transmitted to humans by phlebotomine sandflies.
Three Swedish patients treated with TNF-α inhibitors, one with rheumatoid arthritis, one with ankylosing spondylitis and one with psoriatic arthritis were diagnosed with cutaneous leishmaniasis caused by Leishmania infantum. All of them had, within six months before onset of disease, spent one month at the same rehabilitation unit in the province of Alicante, Spain. This observation in combination with the fact that Sweden is a Leishmania non-endemic country while the province of Alicante has been reported as a high-endemic spot for leishmaniasis incited us to make further investigations.
Our primary aim was to reach all patients that our region had sent to this specific rehabilitation centre from 2014 and onward for the detection and treatment of possible additional cases. Our second aim was to gather substantial information enough for a well founded decision whether to send patients to this rehabilitation centre or not in the future.
All patients were posted a questionnaire and those whose replies indicated a risk of leishmania infection were given a phone call or a doctor's visit. Another 3 cases were found by these means. A seventh much more severe case with visceral leishmaniasis came to the infection unit with oscillating fever, liver and spleen enlar-

gement, pancytopenia and amastigotes in the bone marrow. This patient had been on anti-TNF for more than a decade but at the time of infection she was treated with anti-CD-20. In the mapping process we contacted all regions in the country that send patients with rheumatic diseases for rehabilitation to Alicante, relevant authorities in both Sweden and Spain as well as the Swedish Society of Rheumatology and it's Norwegian counterpart, the rehabilitation centre itself and Spanish researchers specialized in Leishmania.
We found 7 cases of leishmaniasis out of a total of approximately one hundred patients with immunosuppressive treatment. No cases so far were reported among the patients who were not on immunosuppressives. All but the one with visceral infection became free of symptoms after treatment with i.v Amphotericin B. Two additional cases of visceral leishmaniasis have been reported from other parts of Sweden, most probably also infected in the Alicante region.
Along with the well known risk of intracellular infections with Mycobacteria, Legionella and Listeria, Leishmania should be remembered with special awareness for visceral leishmaniasis when the immunosuppressed patient is presenting with fever and pancytopenia. Due to our findings we decided to stop our rehabilitation programmes at the actual site. We have an on going clinical study for long-term follow up of this cohort of patients. Further leishmaniasis cases may still be diagnosed, as the time from exposure to symptoms may be as long as several years.

References

Guedes-Barbosa et al. Seminars in Arthritis and Rheumatism (2013) 43:152-157
Glans et al. BMC Infectious Diseases (2018) 18:632-641
Hammarström et al. Rheumatology Advances in Practice (2018) 2:1-2

3 ALCOHOL CONSUMPTION AND DEVELOPMENT OF ARTHRITIS AMONG PATIENTS WITH ANTI-CITRULLINATED PEPTIDE ANTIBODIES AND MUSCULOSKELETAL PAIN

Kontaktinformation: Emma Eloff, emma.eloff@regionostergotland.se

Emma Eloff[3], Michael Ziegelasch[1], Klara Martinsson[2], Jan Cedergren[1], Åsa Reckner[1], Thomas Skogh[1], Louise Karlsson[3], Andreas Ärlemalm[3], Alf Kastbom[1]

[1] Reumatologiska kliniken, US Linköping, Linköping
[2] Institutionen för klinisk och experimentell medicin (IKE), Linköpings Universitet, Linköping
[3] Klinisk farmakologi, US Linköping, Linköping

Background

Individuals with anti-citrullinated peptide antibodies (ACPA) and arthralgia are at increased risk of developing rheumatoid arthritis (RA). Predictors of disease development are important within this category of patients in order to improve treatment and follow-up decisions. Although excessive use of alcohol is well-known to cause harmful medical and social consequences, an inverse association between alcohol consumption and RA development has been proposed. Phosphatidylethanol (PEth) has shown to be a reliable biomarker to measure recent (up to four weeks) alcohol consumption with high specificity.

Objectives

The aim of this study was to, in relation to other possible clinical and laboratory predictors, pinpoint the association between biochemically determined alcohol consumption and development of arthritis in ACPA-positive individuals with musculoskeletal pain.

Methods

The study was performed as part of an observational prospective cohort (TIRx), including 104 ACPA-positive individuals with musculoskeletal pain and maximally one arthritis upon clinical examination. Exclusion criteria were >1 clinical arthritis, previous inflammatory rheumatic disease, and oral or intraarticular corticosteroid treatment within 6 weeks prior to screening. Participants were enrolled between 2010 and 2013 and were carefully followed during 72 months in median (range 23-91). The primary outcome measure was development of arthritis upon clinical examination. In baseline samples, we assessed ACPA levels in serum (2nd generation cyclic citrullinated peptides (CCP) as antigen), rheumatoid factor (RF), and the presence of shared epitope. PEth 16:0/18:1 was measured by liquid chromatography coupled with tandem mass spectrometry (LC-MS/MS) in whole blood from baseline, and the results were categorized into three groups: no/low, moderate, or high consumption. Cox regression analyses were performed adjusting for smoking, symptom duration, age, sex, shared epitope, RF, and treatment with disease modifying antirheumatic drugs (DMARDs) and oral glucocorticoids.

Results

In TIRx, 82 patients had no swollen joints at inclusion, of whom 39 (48%) developed arthritis during follow-up after median 6 months (range 1-71). Of those, 48 (59%) patients were classified according to PEth values with no/low alcohol consumption, 28 (34%) with moderate consumption and 5 (6%) patients with high alcohol consumption. There was no significant difference in PEth values between patients with one baseline arthritis compared to those without (p=0.09). Neither were there any significant differences in arthritis-free survival across PEth categories versus arthritis development (p=0.64). Unadjusted hazard ratios (HRs) were numerically, but not significantly, increased among moderate (HR 1.22 95% CI 0.63-2.37, p=0.56) and high consumers (HR 1.69 95%CI 0.50-5.68, p=0.40) as compared to those classified as no/low consumers.
There was an increased risk of arthritis development regarding RF positivity (adjusted HR 3.13, 95% CI 1.36-7.19, p=0.007) and higher ACPA levels (adjusted HR 1,001 95% CI 1.000-1.001, p<0.001), respectively.

Conclusion

This study does not show a significant association between biochemically assessed recent alcohol consumption and arthritis development in ACPA-positive individuals with musculoskeletal pain. Thus, PEth does not appear to be a clinically useful biomarker to predict disease development in ACPA-positive at-risk populations. Whether it may predict arthritis in a seronegative population remains to be determined. We confirm that RF positivity and ACPA levels associate with arthritis development in an ACPA-positive population.

4 GENDER DIFFERENCES IN CLINICAL SYMPTOMS OF ARTHRITIS AND ARTHRALGIA

Kontaktinformation: Jennifer Grahn Hellberg gushellbje@student.gu.se

Jennifer Grahn Hellberg[1], Malin Erlandsson[1,3], Sofia Töyrä Silfverswärd[1], Rille Pullerits[1,2,3], Maria I. Bokarewa[1,3]

[1] Rheumatology Clinic, Sahlgrenska University Hospital
[2] Department of Clinical Immunology and Transfusion Medicine, Sahlgrenska University Hospital
[3] Department of Rheumatology and Inflammation Research, University of Gothenburg

Background
To differ arthralgia (ALG) from early rheumatoid arthritis (RA) can be a challenging task. To ease early diagnosis, the European League Against Rheumatism has developed a scoring system for clinically suspect arthralgia (CSA) and a different system for the RA classification criteria.

Aim
To identify differences in symptomatology, laboratory attributes between arthritis and ALG of first visit patients.

Methods
We retrospectively analyzed records of 346 first-visit patients remitted to the Rheumatology Clinic, Sahlgrenska University Hospital, for joint complains between July 1 and December 31, 2018. Based on the diagnosis at the first visit, the patients were divided into the groups of ALG and arthritis. Clinical symptoms were retrieved according to the CSA characteristics and the RA criteria. To strengthen comparison for autoantibodies (AB), the data collected in the identical cohort year 2013 (152 arthritis and 165 ALG patients) were combined. The groups were compared by gender and presence of AB using non-parametric statistics.

Results
Out of the 346 patients, 94 had ALG (30 men and 64 women), and 86 had arthritis (33 men and 53 women). The remaining 166 patients were excluded due to other diagnosis, known arthritis and death. The patients with ALG were generally younger than with arthritis. The difference was significant in the women (p=0.011). Information regarding the CSA-characteristics as making a fist, squeeze test on MCP and MTP was unavailable for >80% of the records; thus, the remaining 13 parameters were used. We observed that pain in a big number of joints was more common in ALG, while the increasing number of painful joints, including feet, and morning predominance of symptoms distinguished arthritis. This distinction in symptoms between ALG and arthritis was often seen in women than in men. When the data of years 2013 and 2018 were combined, the pattern of ALG symptoms became more homonymous. Women with arthritis, but not men, had significantly higher CSA score compared to ALG (p<10-6). Women and men with arthritis had a median RA-score of 5p, and 45% of women and 33% of men fulfilled criteria for RA. Of those, 87% women and 64% men were AB+. In arthritis, men had less affected small joints than women. Compared to ALG, the arthritis patients had higher acute-phase reactants, but not AB+. The DAS28 was similar in AB+ and AB- arthritis patients. The CSA-score was similar in the AB+ and AB- ALG (p=0.13), and it was significantly higher in AB+ arthritis compared to AB- (p<10-4), in both men and women. In ALG, AB+ women had often spread pain to big number of joints and several areas; while AB+ men had symptoms from the feet.

Conclusions
Women with ALG were younger and had lower CSA-score than women with arthritis, and may comprise a risk for coming arthritis. The CSA-score was similar in AB+ and AB- ALG. Only a minority of arthritis patients fulfilled the RA criteria, most of them were AB+. This delayed diagnosis and treatment for AB- patients, despite similar disease activity.

5 CARDIOVASCULAR RISK FACTORS AND COMORBIDITIES IN PATIENTS WITH PSA, RA AND THE GENERAL POPULATION

Kontaktinformation: Anton Landgren, anton.landgren@rheuma.gu.se

Anton Landgren[1], Lennart TH Jacobsson[1], Mats Dehlin1, Ulrika Bergsten[2], Eva Klingberg[1]

[1] Dept of Rheumatology and Inflammation Research, Sahlgrenska Academy, Gothenburg, Sweden
[2] Research and Development Department at Region Halland, Halmstad, Sweden

Background
Patients with psoriatic arthritis (PsA) have previously been reported to have increased cardiovascular morbidity and mortality compared to psoriasis, rheumatoid arthritis (RA) and the general population (GP). Obesity has been linked to an increased risk of developing PsA and to be higher in patients with PsA compared to those with psoriasis, RA and GP. Furthermore, obese patients with PsA are more likely to have high disease activity and a reduced response to treatment. Few studies have reported on life style data in combination with traditional cardiovascular risk factors in patients with PsA compared to GP and RA in the same setting.

Objectives
We aimed to assess cardiovascular risk factors in patients with PsA compared to age- and sex matched RA and GP subjects.

Methods
We performed a cross-sectional study in the Western Sweden Health Care Region (WSHCR). All Individuals who were ≥18 and had at least one ICD-10 diagnosis for PsA (ICD-10 codes M073) or RA (ICD 10 codes M059 and M060), at a visit at any of three rheumatology clinics in the WSHCR during a two-year period (Jan 2015 through Feb 2017) were identified. From these we randomly selected PsA patients (n=1200) and RA patients (n=1246), with equal sex distribution and they were sent a postal questionnaire. Data for non-responders were limited to age and sex.
The questionnaire included questions on demographics, comorbidities, smoking, alcohol consumption, physical activity, medications and disease specific entities. The National public health survey from 2015, "Health on equal terms", which was sent to randomly selected citizens in Sweden aged 16-84, was used as a sex- and aged matched reference population with five controls matched per RA and PsA case. Obesity was defined according to WHO standards as BMI ≥30. Daily smoking, alcohol consumption (≥5 standard drinks of alcohol per week) and physical activity (≥3 hours per week) were also analyzed.

Results
Response rates were n=687 (57.3%) for PsA and n=742 (59.6%) for RA. After age- and sex matching there were 432 individuals

Table 1, characteristics of PsA, RA and GP subjects

	PsA, n=432	RA, n=431	GP, n=4314	p-value (PsA vs RA)	p-value (RA vs GP)	p-value (PsA vs GP)
BMI, mean (std)	27.4 (4.8)	26.3 (4.6)	26.4 (4.3)	0.001	0.705	<0.001
BMI≥30, n(%)	98 (22.7)	69 (16.0)	739 (17.1)	0.012	0.555	<0.001
Daily smoker, n(%)	37 (8.6)	55 (12.8)	N/A	0.046	N/A	N/A
≥5 standard drinks of alcohol per week, n(%)	92 (21.3)	69 (16.0)	N/A	0.046	N/A	N/A
Physical activity ≥3 hours per week, n(%)	224 (51.9)	205 (47.6)	2354 (54.6)	0.208	0.005	0.289
Diabetes, n(%)	52 (12.0)	42 (9.7)	356 (8.3)	0.167	0.301	0.007
Myocardial infarction, n(%)	28 (6.5)	25 (5.8)	N/A	0.501	N/A	N/A
Stroke, n(%)	16 (3.7)	15 (3.5)	N/A	0.675	N/A	N/A
Gout, n(%)	25 (5.8)	19 (4.4)	N/A	0.199	N/A	N/A
Kidney disease, n(%)	9 (2.1)	11 (2.6)	N/A	0.814	N/A	N/A
Hypertension, n(%)	195 (45.1)	170 (39.4)	1350 (31.3)	0.044	<0.001	<0.001
Hyperlipidemia, n(%)	94 (21.8)	70 (16.2)	N/A	0.039	N/A	N/A

with PsA, 431 with RA and 4314 matched subjects from the general population left for analyses. Mean age was 61.1 (SD 12.0) years and 42% males in all three groups. Patients with PsA were more frequently obese, compared to both GP (p<0.001) and RA (p=0.012). Smoking was more prevalent in RA and PsA than in GP. In addition, hypertension was more common in PsA compared to RA (p=0.044) and GP (p<0.001). Diabetes was also more prevalent in PsA than in GP (p=0.007), as was hyperlipidemia (p=0.039). Patients with PsA drank more often ≥5 standard drinks of alcohol per week than patients with RA did (p=0.046).

Conclusions
In PsA, obesity and comorbidities related to CVD were increased above what was seen for both RA compared to the GP. This highlights the need to address these partly modifiable factors in particular for patients with PsA.

6 LOW SERUM IGF1 IS ASSOCIATED WITH HYPERTENSION AND PREDICTS EARLY CARDIOVASCULAR EVENTS IN WOMEN WITH RHEUMATOID ARTHRITIS

Kontaktinformation: Malin Erlandsson, malin.erlandsson@gu.se

Malin C. Erlandsson[1], Lovisa Lyngfelt[1], Caroline Wasén[1], Rachelle Espino[1], Sofia Töyrä Silfverswärd[1], Mitra Nadali[1], Karin Andersson[1], Rille Pullerits[1], Maria I. Bokarewa[1], N. David Åberg[2], Katharina Jood[2]

[1] Rheumatology Unit at Sahlgrenska University Hospital and Department of Rheumatology and Inflammation Research, University of Gothenburg
[2] Neurology Unit at Sahlgrenska University Hospital and Department of Clinical Neuroscience and Physiology, University of Gothenburg

Objectives
Hypertension is a significant health threat and an independent predictor of CV events. Chronic inflammation is an important contributor to elevated risk of CVD events in rheumatoid arthritis (RA) patients. Recent studies have shown an inverse relation between IGF1 and hypertension. Since low IGF1 is often linked to inflammation, we analyze whether serum levels of IGF1 are associated with cardiovascular disease (CVD) in RA in a longitudinal cross-sectional study.

Aim
To investigate the possible connection between serum IGF1 and cardiovascular disease in female RA patients.

Methods
Cardiovascular risk was estimated (eCVR) in 184 female RA patients (mean age 52y) and in 132 female patients after ischemic stroke (mean age 56y) with no rheumatic disease, using the Framingham algorithm. The median level of IGF1 divided the cohorts in IGF1high and IGF1low groups and cardiovascular risk factors were compared. A 5-year prospective follow-up for new CVD events was completed in all RA patients. The Mantel-Cox analysis and event-free survival curves were prepared. Unsupervised clustering of proteins within the IGF1 signaling pathway was employed to identify their association with eCVR.

Results
Low IGF1 resulted in a higher eCVR in both RA patients (7.2% vs 3.3%, p=0.0063) and in stroke (9.3% vs 7.1%, p=0.033). RA patients with low IGF1 at baseline had higher rate for new CVD events at prospective follow-up (OR 4.96, p=0.028). Hypertension was the major risk factor associated with low IGF1 in RA and stroke. In patients with hypertension, IGF1 was no longer responsible for intracellular activation and lost its correlation to IRS1/2 adaptor proteins. The clustering analysis confirmed that combination of low IGF1 and IRS1/2 with high IL6, insulin and glucose predisposed to high eCVR and emphasized the functional role of serum IGF1.

Conclusions
Low serum IGF1 precedes and predicts development of early CVD events in female RA patients. Hypertension and aberrant IGF1 receptor signaling are highlighted as the important contributors to IGF1-related CVD events.

7 OSTEOPROTEGERIN AND OSTEOCALCIN ARE ASSOCIATED WITH ATHEROSCLEROSIS IN PATIENTS WITH RHEUMATOID ARTHRITIS: A PROSPECTIVE COHORT STUDY

Kontaktinformation: Bengt Wahlin, bengt.wahlin@umu.se

Bengt Wahlin[1], Kjell Karp[2], Anna Ramnemark[3], Solbritt Rantapää-Dahlqvist[1], Solveig Wållberg-Jonsson[1], Anna Södergren[1]

[1]Folkhälsa och klinisk medicin/reumatologi, Umeå universitet, Umeå
[2]Kirurgi och perioperativa vetenskaper/klinisk fysiologi, Umeå universitet, Umeå
[3]Samhällsmedicin och rehabilitering, Umeå universitet, Umeå

Background
Patients with rheumatoid arthritis (RA) have an accelerated progression of atherosclerosis and an increased mortality and morbidity due to cardiovascular disease. Markers and regulators of bone turnover have been proposed to be associated with atherosclerosis in the general population. In patients with RA, osteoprotegerin has been associated with several measures of atherosclerosis, but studies of other bone markers in relation to atherosclerosis in patients with RA have not been published.

Objectives
To study the association between subclinical atherosclerosis, assessed by intima-media thickness (IMT), and regulators of bone formation, markers of bone turnover and bone mineral density (BMD) in patients with RA.

Methods
Patients with new-onset RA (n=79), aged ≤60 years at diagnosis, were consecutively included in a study of development of atherosclerosis. Ultrasound measurement of IMT of the common carotid artery was undertaken at inclusion (T0) and after 11 years (T11) (n=54). Regulators of bone formation and markers of bone turnover were examined in samples collected at T0 and T11. BMD was assessed by dual-energy x-ray absorptiometry (DXA) at T11.

Results
In patients with RA, osteocalcin (OCN) and osteoprotegerin (OPG) measured at T11, were in a linear regression model significantly associated with IMT at T11, adjusted for systolic blood pressure (SBP) and age. BMD at T11 and the bone turnover markers procollagen type 1 N-terminal propeptide (P1NP) and carboxy-terminal crosslinked C-terminal telopeptide (CTX) were not associated with IMT. In linear regression models with variables from T0, OPG, OCN and sclerostin (SCN) were associated with IMT at T11, and OPG and OCN at T0 were associated with change in IMT from T0 to T11. The associations between IMT and bone biomarkers were stronger in patients with joint erosions at onset of RA, than in patients with non-erosive disease. There were no significant differences between patients and controls in bone mineral density or levels of any bone marker, except for OPG and parathyroid hormone.

Conclusions
Atherosclerosis in patients with RA is associated with OPG and OCN, but not with BMD or markers of bone turnover, indicating that bone turnover and atherosclerosis have independent pathogenetic mechanisms.

8 SOLUBLE RECEPTOR FOR ADVANCED GLYCATION END PRODUCTS (SRAGE) AND RISK FOR CARDIOVASCULAR DISEASES IN FEMALES WITH RHEUMATOID ARTHRITIS

Kontaktinformation: Namn Mitra Nadali, E-post mitra.nadali@vgregion.se

Mitra Nadali[1], Maria Bokarewa[1], Rille Pullerits[1], Sofia Töyrä Silfverswärd[1], Malin Erlandsson[1], Lovisa Lyngfelt[2], Karin Andersson[2]

[1]Department of Rheumatology and Inflammation Research, Institution of Medicine, Sahlgrenska Academy at University of Gothenburg, Gothenburg
[2]Sahlgrenska Academy at University of Gothenburg, Department of Rheumatology and Inflammation Research, Institution of Medicine, Gothenburg

Background
Rheumatoid arthritis (RA) is strongly associated with increased frequency of cardiovascular disease (CVD), which remains the major cause of mortality in these patients. Current CVD risk assessment algorithms have limited predictive value for RA patients. Soluble receptor for advanced glycation end products (sRAGE) has recently emerged as a biomarker of inflammation with an inverse correlation with traditional CVD risk factors as age, hypertension and hypercholesterolemia (1).

Objective
In a cohort of female RA patients with no previous history of CVD, we assessed whether sRAGE levels were associated with increased risk of CVD during a prospective 5 years follow up.

Methods
Serum sRAGE levels were measured in 171 female RA patients (median age 53; range 21-71) at the inclusion to the study. The CVD risk was estimated using the Framingham algorithm and both traditional and RA associated risk factors for CVD were measured. All the patients were prospectively followed up to 5 years for new CV events, type II diabetes and medication for hypertension and hyperlipidemia. Statistical analysis was performed to compare CVD risk and actual events in the patients with low sRAGE (60 years (30% vs 41%), overweight (50% vs 41%), smoking (14% vs 11%), incidental hypertension (16% vs 16%) and hypercholesterolemia (56% vs 67%) at baseline and led to similar estimated CVD risk (7.65% vs 8,45%). The RA-related CVD risk factors including disease duration >10years (37% vs 39%), presence of autoantibodies (89% vs 95%), disease activity (DAS28, 46% vs 60%) were also similar in the low-and high sRAGE groups. At 5 years follow up, 11 new CVD events were registered. The events occurred with similar frequency in the low sRAGE and high sRAGE groups (5.6% vs 8.7%). Despite a lack of difference in CVD events, we did observe a significant increase in frequency of new medication for hypertension in the low sRAGE group (21.5% vs. 63%, p=0.01), but not in medication for type II diabetes or statins.

Conclusion
In this study, we found no association between serum levels of sRAGE and the estimated CVD risk or actually occurred CVD events in female RA patients. The frequency of traditional and disease related CVR was similar in the low sRAGE versus high sRAGE group.

Reference
1. Santilli, F., et al. (2009). "Soluble forms of RAGE in human diseases: clinical and therapeutical implications." Curr Med Chem 16(8): 940-952.

9 PREDICTORS OF UNACCEPTABLE PAIN, AND UNACCEPTABLE PAIN WITH LOW INFLAMMATION, IN EARLY RHEUMATOID ARTHRITIS

Kontaktinformation: Carl Turesson, Carl.Turesson@med.lu.se

Anna Eberhard[1], Tor Olofsson[2], Lennart Jacobsson[3], Carl Turesson[1]

[1]Reumatologi, Institutionen för Kliniska Vetenskaper, Malmö, Lunds Universitet, Malmö
[2]Sektionen för Reumatologi, Skånes Universitetssjukhus, Malmö
[3]Avdelningen för Reumatologi och Inflammationsforskning, Sahlgrenska Akademin, Göteborgs Universitet, Göteborg

Background
Pain is a major symptom in many patients with rheumatoid arthritis (RA). In early RA, pain is usually due to active synovitis, but over the disease course some patients experience pain without elevated laboratory markers of inflammation.

Objective
To investigate predictors of unacceptable pain, and unacceptable pain with low inflammation, in patients with early RA.

Methods
Consecutive patients with early RA (symptom duration 40 based on the patient acceptable symptom state (PASS) (1), and low inflammation as CRP<10 mg/l (2). Baseline predictors of unacceptable pain, and of unacceptable pain with low inflammation, were evaluated using logistic regression analysis.

Results
A total of 233 patients with early RA (73 % female, 57 % anti-CCP positive, mean age 60 years, median symptom duration 7 months) were included. Of these, 179 attended the 5-year follow-up. At 5 years, 34 % had unacceptable pain, and 23 % had unacceptable pain with low inflammation. High VAS scores for pain and patient's global assessment (PGA) at baseline were associated with unacceptable pain at 5 years (Table). There was a negative association between baseline swollen joint count (SJC28) and unacceptable pain at the 5 year follow-up. In multivariate logistic regression analysis including VAS PGA and SJC28, both had an impact on unacceptable pain after 5 years (adjusted odds ratios per standard deviation (SD), with 95 % CI 1.78 (1.26-2.52) and 0.61 (0.42-0.89),

Baseline predictors of unacceptable pain or unacceptable pain with low inflammation in the early RA cohort after 5 years, bivariate conditional logistic regression

	Unacceptable pain		Unacceptable pain with low inflammation	
Variable	**Odds ratio**	**95 % CI**	**Odds ratio**	**95 % CI**
Female	1.24	0.62 – 2.47	1.87	0.80 – 4.40
RF positive	0.88	0.46 – 1.67	0.54	0.26 – 1.09
Anti-CCP positive	0.77	0.39 – 1.49	0.50	0.22 – 0.98
Erosion	0.62	0.26 – 1.49	0.62	0.22 – 1.72
Age	1.09	0.80 – 1.49	0.97	0.68 – 1.38
Symptom duration	1.28	0.93 – 1.76	1.19	0.83 – 1.71
VAS pain	1.40	1.02 – 1.91	1.34	0.94 – 1.92
DAS28	1.03	0.76 – 1.41	1.00	0.70 – 1.42
SJC28	0.71	0.51 – 0.99	0.70	0.47 – 1.03
TJC28	0.98	0.71 – 1.35	1.04	0.72 – 1.50
HAQ	1.01	0.74 – 1.37	1.01	0.72 – 1.43
CRP > 9 mg/l	0.64	0.29 – 1.41	0.62	0.23 – 1.72
ESR	0.79	0.57 – 1.09	0.74	0.50 – 1.11
VAS PGA	1.60	1.16 – 2.21	1.39	0.98 – 2.00

Odds ratios per SD for continuous variables

respectively). Anti-CCP positive patients were significantly less likely to experience unacceptable pain with low inflammation at 5 years (Table).

Conclusion

More than 1/3 of early RA patients experienced unacceptable pain after 5 years. Extensive synovitis in early RA was associated with a reduced risk of unacceptable pain at 5 years, likely due to positive effects of treatment on inflammation related pain. Non-inflammatory pain may be a greater long term problem in anti-CCP negative patients.

References

1) Tubach et al. Arthritis Care Res 2012; 64: 1699-707
2) Lourdudoss et al. Arthritis Care Res 2018; 70: 205-12.

10 THE RELATION BETWEEN INFLAMMATORY JOINT ACTIVITY AND DISABILITY RELATED TO THE LOWER EXTREMITIES IN EARLY RHEUMATOID ARTHRITIS

Kontaktinformation: Maria Mellblom Bengtsson, maria.mellblombengtsson@skane.se

Maria Mellblom Bengtsson[1], Sofia Hagel[2], Lennart TH Jacobsson[3], Carl Turesson[4]

[1]Department of Rheumatology, Skåne University Hospital, Malmö
[2]Rheumatology, Department of Clinical Sciences, Lund University, Lund
[3]Department of Rheumatology and Inflammation Research, Sahlgrenska Academy at Gothenburg University, Gothenburg
[4]Rheumatology, Department of Clinical Sciences, Lund University, Malmö

Background/Purpose

Arthritis in the lower extremities has a major impact in many patients in rheumatoid arthritis (RA), but has not been extensively studied. The objective of this study was to investigate the relation between inflammatory joint involvement and disability related to the lower extremities in early RA.

Methods

An inception cohort of patients with early RA (symptom duration ≤12 months), recruited in 1995-2005, was investigated and followed in a structured program. All patients were examined by the same rheumatologist. To estimate disability based on self-reported activity limitations, we used the Health Assessment Questionnaire Disability Index (HAQ-DI). In order to more specifically address disability of the lower extremities, we calculated a sub score, HAQ-DI lower extremities (HAQ-DI-LE), based on the 10 questions that cover activities that are mainly dependent on function of the lower extremities (Ekdahl et al. J Clin Epidemiol 1989; 42: 947-54). HAQ-DI LE scores in those with vs without current synovitis of individual joints were compared using the Mann Whitney test.

Results

A total of 233 patients with early RA (70 % women, mean age 60.5 years, median symptom duration 7 months) were investigated. The median HAQ-DI LE at inclusion was 0.6 (interquartile range 0.2-1.2). Knee synovitis, ankle synovitis and MTP joint synovitis was present at inclusion in 18 %, 26 % and 39 %, respectively. Proportions with synovitis in the lower extremities declined over time (Table). Knee synovitis was associated with significantly higher HAQ-DI-LE scores at inclusion (p<0.001) and after 6 months (p=0.01), but not at later follow-up visits (Table). Patients with ankle synovitis had higher HAQ-DI-LE at 6 months (p=0.02), 1 year (p=0.006) and 2 years (p<0.001). MTP joint synovitis was also associated higher HAQ-DI-LE, in particular at baseline (p=0.045). However, differences in HAQ-DI-LE for those with vs without synovitis were numerically smaller at 1 year and at 2 years for MTP joint synovitis compared to ankle synovitis (Table).

HAQ-DI for the lower extremities at different time points in early RA, by presence of synovitis

	Synovitis status	Inclusion	6 months	1 year	2 years	5 years
Knees	Present	1.2 (0.75-1.6) (n=42) **p<0.001**	0.7 (0-4-1.2) (n=28) **p=0.01**	0.8 (0.2-1.2) (n=12) p=0.15	0.7 (0.35-1.6) (n=14) p=0.12	1.0 (0.2-1.4) (n=13) p=0.08
	Absent	0.4 (0.1-1.0) (n=189)	0.4 (0-0.8) (n=184)	0.4 (0-0.8) (n=207)	0.4 (0-1.0) (n=195)	0.6 (0-1.0) (n=162)
Ankles	Present	0.8 (0.2-1.2) (n=61) p=0.58	0.6 (0-1.3) (n=44) **p=0.02**	0.8 (0-1.2) (n=42) **p=0.006**	1.0 (0.4-1.6) (n=31) **p<0.001**	0.8 (0-1.4) (n=20) p=0.23
	Absent	0.6 (0.2-1.2) (n=170)	0.4 (0-0.8) (n=168)	0.4 (0-0.8) (n=178)	0.4 (0-0.8) (n=178)	0.6 (0-1.2) (n=156)
MTP joints	Present	0.8 (0.2-1.2) (n=90) **p=0.045**	0.5 (0-1.0) (n=52) p=0.13	0.6 (0-1.0) (n=56) p=0.10	0.7 (0.2-1.0) (n=46) **p=0.04**	1.0 (0.5-1.5) (n=13) p=0.09
	Absent	0.4 (0-1.10) (n=141)	0.4 (0-0.8) (n=160)	0.4 (0-0.8) (n=164)	0.4 (0-1.0) (n=163)	0.6 (0-1.0) (n=163)

Values are Median (IQR). p-values are for present vs absent synovitis.

Conclusion

Knee synovitis was associated with disability related to the lower extremities, in particular in very early RA, whereas ankle synovitis had a greater impact after 1-2 years than at diagnosis. Large joint synovitis may be more important for lower extremity function compared to synovitis of the MTP joints. These findings underline the importance of assessment of the joints of the lower extremities in patients with RA.

11 THE IMPACT OF DISEASE ACTIVITY AND PATIENT REPORTED OUTCOMES ON GRIP FORCE OVER TIME IN EARLY RHEUMATOID ARTHRITIS

Kontaktinformation: Maria Rydholm, maria.rydholm@skane.se

Maria Rydholm[1], Ingegerd Wikström[2], Sofia Hagel[3], Lennart TH Jacobsson[4], Carl Turesson[2]

[1]Department of Rheumatology, Skåne University Hospital, Malmö
[2]Rheumatology, Department of Clinical Sciences, Lund University, Malmö
[3]Rheumatology, Department of Clinical Sciences, Lund University, Lund
[4]Department of Rheumatology and Inflammation Research, Sahlgrenska Academy at Gothenburg University, Gothenburg

Background/Purpose

Although patients with early rheumatoid arthritis (RA) have substantially reduced grip strength compared to the general population, some improvement over time has been demonstrated in many patients. The objective of this study was to identify early predictors of future grip strength in patients with RA.

Methods

An inception cohort of patients with early RA (symptom duration ≤12 months), recruited in 1995-2005, was investigated and followed in a structured program (4 examinations over 5 years), including clinical evaluation and grip force measurement. Grip force was measured using the electronic instrument Grippit (AB Detektor, Gothenburg, Sweden). Average grip force values of the dominant

Impact of baseline patient reported outcomes and disease activity on grip force (% of expected value) over time; by quartile

		Intercept (95% CI)	Estimated mean difference (95% CI)	Change/year (95% CI)	Difference in change/year (95% CI)
DAS28	Quartile I (0-3.6)	61.4% (53.4% to 69.4%)	Reference	1.3% (0.02% to 2.6%)	Reference
	Quartile II (3.7-4.7)	48.2% (41.8% to 54.5%)	10.7% (2.0% to 19.4%)	2.6% (1.4% to 3.9%)	1.3% (-0.4% to 3.1%)
	Quartile III (4.8-5.7)	41.3% (34.6% to 47.9%)	16.7% (7.9% to 25.5%)	3.1% (1.9% to 4.4%)	1.8% (0% to 3.6%)
	Quartile IV (5.8-)	29.6% (24.1% to 35.1%)	25.9% (17.2% to 34.6%)	4.4% (3.2% to 5.7%)	3.1% (1.4% to 4.9%)
VAS pain	Quartile I (0-19)	59.4% (52.0% to 66.7%)	Reference	1.8% (0.5% to 3.1%)	Reference
	Quartile II (20-39)	45.2% (37.6% to 52.9%)	11.3% (2.2% to 20.4%)	3.4% (2.0% to 4.7%)	1.5% (0.3% to 3.4%)
	Quartile III (40-63)	34.7% (29.1% to 40.4%)	20.8% (12.2% to 29.5%)	3.9% (2.8% to 5.0%)	2.1% (0.4% to 3.8%)
	Quartile IV (64-100)	41.0% (34.2% to 47.8%)	17.4% (8.6% to 26.3%)	2.3% (0.9% to 3.7%)	0.5% (-1.3% to 2.3%)
VAS Global	Quartile I (0-20)	59.3% (51.3% to 67.2%)	Reference	2.3% (1.0% to 3.6%)	Reference
	Quartile II (21-46)	45.4% (40.0% to 50.9%)	12.6% (3.8% to 21.5%)	2.9% (1.6% to 4.2%)	0.6% (-1.2% to 2.4%)
	Quartile III (47-64)	37.6% (30.5% to 44.7%)	19.2% (10.2% to 28.2%)	3.7% (2.5% to 4.9%)	1.4% (-0.4% to 3.2%)
	Quartile IV (65-100)	38.0% (31.3% to 44.8%)	20.5% (11.5% to 29.5%)	2.7% (1.3% to 4.0%)	0.4% (-1.4% to 2.2%)
HAQ	Quartile I (0-0.38)	62.2% (55.1% to 69.3%)	Reference	2.0% (0.8% to 3.2%)	Reference
	Quartile II (0.39-0.75)	43.2% (36.2% to 50.1%)	17.7% (9.2% to 26.3%)	2.7% (1.4% to 4.0%)	0.7% (-1.1% to 2.5%)

hand were evaluated at each visit, and compared to the expected, based on age- and sex-specific reference values from the literature. Patients in each of the three higher quartiles of baseline disease activity (DAS28), disability (HAQ), pain (visual analogue scale, VAS) and patient global assessment (VAS global) were compared to the lowest quartile. Differences in percentage of expected grip force values over the study period, and differences in change over time, were estimated using mixed linear effect models.

Results

A total of 233 patients with early RA (70 % women, mean age 60.5 years, median symptom duration 7 months) were investigated. The mean value for the average grip force of the dominant hand increased from 40 % of expected at baseline to 57 % at the 5-year follow-up. Patients with baseline parameters in the three higher quartiles had significantly lower mean grip force values over time, compared to the lowest quartiles (Table). Patients in the highest quartile of DAS28 had significantly greater improvement compared to the lowest quartile (estimated difference in change per year 3.1 % of expected; 95 % CI 1.4 to 4.9). By contrast, there was no difference in improvement for those in the highest quartiles of VAS pain (estimated difference in change per year 0.5 % of expected; 95 % CI -1.3 to 2.3) or VAS global (Table), compared to those in the lowest quartiles.

Conclusion

Patients with a severe disease phenotype at baseline had particularly impaired grip force over the first 5 years after RA diagnosis. However, those with high initial disease activity experienced greater improvement in grip force, likely due to successful treatment. By contrast, poor patient reported outcomes at baseline were associated with persistent impairment of grip strength.

12 HAVE THE CLINICAL CHARACTERISTICS OF RHEUMATOID ARTHRITIS AT PRESENTATION BECOME MILDER OVER TIME? RESULTS FROM A NATIONWIDE STUDY OVER THREE DECADES IN SWEDEN

Kontaktinformation: Jon Thorkell Einarssson, jon.einarsson@med.lu.se

Jon Thorkell Einarsson[1], Tor Olofsson[1], Olafur Palsson[1], Johan K Wallman[1], Meliha C Kapitanovic[1]

[1]Reumatologiska kliniken SUS, Lunds Universitet, Lund

Background

The course of rheumatoid arthritis (RA) has become milder during the last decades, which could at least partly be attributed to major advances in the pharmacological treatment of the disease and the implementation of "treat to target"-strategies (1,2). It has also been suggested that RA is already milder at presentation (3).

Objectives

To investigate whether the clinical status, markers of inflammation, functional status, and patient and evaluator reported disease activity measures in patients with newly diagnosed RA, have improved over the recent decades.

Methods

Baseline data on all DMARD-naïve patients with early RA (<6 months duration) included in the nationwide Swedish Rheumatology Quality registry (SRQ) between 1991 and 2014 were retrieved. The RA diagnosis relied on the clinical judgement of the treating physician and the information comprised swollen and tender joints count (SJC; TJC), markers of inflammation (CRP; ESR), functional status (HAQ; 0-3), patient´s and evaluator´s assessment of global disease activity (PtGA; EGA) and patient´s assessment of pain (on a visual analog scale, VAS; 0-100 mm). Baseline demographic and disease characteristics were compared between patients with disease onset 1991-2000 vs. those with onset 2011-2014, using Mann-Whitney U test and Pearson's chi-squared test.

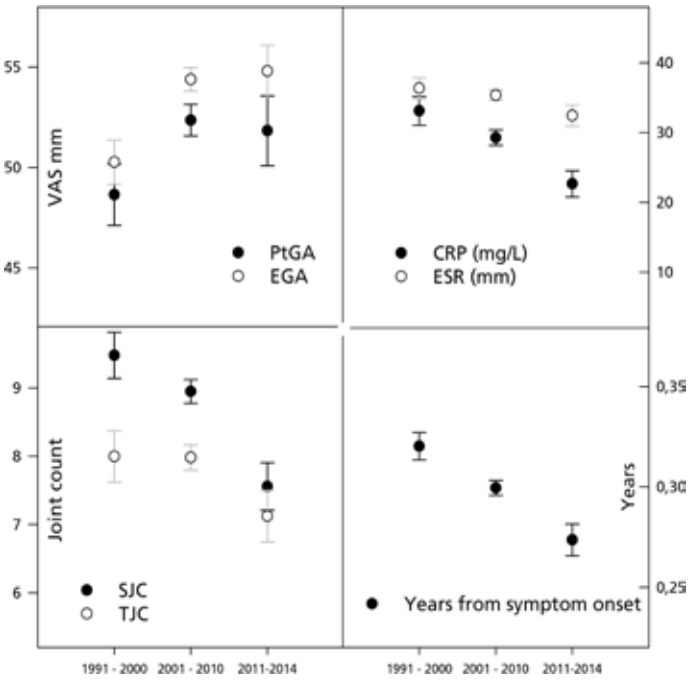


TABLE 1 (mean (sd))	1990s	2000s	2011-2014	p-value*
Number of patients	1227	4344	988	-
Age at inclusion (years)	57,4 (15,4)	58,4 (15,0)	59,1 (14,7)	0,006
Female gender	67,3%	67,6%	70,4%	0,12
Time from symptom onset (months)	3,8 (1,5)	3,6 (1,5)	3,3 (1,5)	<0,001
CRP (mg/L)	33,1 (36,3)	29,3 (36,7)	22,6 (29,9)	<0,001
ESR (mm)	36,4 (25,8)	35,4 (24,8)	32,4 (23,7)	<0,001
TJC (0-28)	8,0 (6,6)	8,0 (6,1)	7,1 (6,0)	0,005
SJC (0-28)	9,5 (5,9)	9,0 (5,8)	7,6 (5,5)	<0,001
HAQ (0-3)	1,1 (0,6)	1,1 (0,6)	1,0 (0,6)	0,028
EGA(VAS 0-100)	50,3 (19,5)	54,4 (19,4)	54,8 (20,1)	<0,001
Pain (VAS 0-100)	49,5 (26,1)	52,3 (25,5)	53,4 (26,4)	<0,001
PtGA (VAS 0-100)	48,6 (26,7)	52,4 (25,5)	51,8 (26,7)	0,006

*1990S vs 2011-2014

Results

A total of 6559 early RA patients were included. Over the study period of 23 years the majority of the patients were women (68%), and the mean age at inclusion increased from 57,4 to 59,1 years. Results are summarised in Table 1. Mean CRP, ESR, TJC and SJC all decreased significantly between the two time periods compared, which was also the case for HAQ. In contrast, mean pain, PtGA and EGA increased significantly between the time periods. Furthermore, time from symptom onset to inclusion was shorter 2011-2014.

Conclusion

In Swedish patients with early RA, baseline joint counts and inflammatory markers improved over the last three decades. This could partly be explained by shorter symptom duration at diagnosis but also suggests that, at onset, RA might be an inherently milder disease today. However, pain and patient´s global assessment and evaluator´s global assessment of disease activity increased over the same period of time, possibly indicating changes in both patients´ and evaluators´ expectations for management of early RA today.

References

1. Gwinnutt et al. Arthritis Rheumatol. 2017; 69:1566–75.
2. Matsumoto et al. J Rheumatol. 2017; 44:1575–82.
3. Diffin et al J Rheumatol. 2014; 41:1590–9.

13 ARE SENSE OF SOCIAL SUPPORT AND LOW DECISION LATITUDE AT WORK LINKED TO RISK OF RHEUMATOID ARTHRITIS, AND IF SO, HOW DO THEY RELATE TO OTHER RISK FACTORS? RESULTS FROM THE SWEDISH EPIDEMIOLOGICAL INVESTIGATION of RHEUMATOID ARTHRITIS

Kontaktinformation: Louise Hedenstierna, louise.hedenstierna@ki.se

Louise Hedenstierna[1], Lars Klareskog[2], Christina Opava[3], Johan Askling[4], Sofia Ernestam[5], Camilla Bengtsson[6], Lars Alfredsson[7], Saedis Saevarsdottir[8]

[1] Centrum for Rheumatology/ Department of medicine, Karolinska institutet, Stockholm
[2] Division of Rheumatology, Department of Medicine, Karolinska Institutet, Stockholm
[3] Division of physiotherapy, Department of Neurobiology, Care Sciences and Society, Karolinska Institutet, Stockholm
[4] Clinical Epidemiology Unit, Department of medicine, Karolinska Institutet, Stockholm
[5] Centrum for Rheumatology, Stockholm county, Stockholm
[6] Institute of Environmental Medicine, Karolinska Institutet, Stockholm
[7] Clinical Epidemiology Unit, Department of medicine, Karolinska Institutet, Stockholm
[8] Institute of Environmental Medicine, Division of Rheumatology unit, Department of medicine, Karolinska Instituet, Stockholm

Background
The etiological background of rheumatoid arthritis (RA) is complex and not fully understood. The role of socio-economic status and related risk factors have been associated with increased risk of RA, but needs further investigation.

Objectives
We investigated whether psychosocial stress measured as low sense of social support, and low decision latitude at work, were linked to risk of RA, and whether they related to known lifestyle risk factors for RA.

Material and methods
The Swedish population-based EIRA study included incident RA cases (N=3724) and controls (N=5937). Responders filled in questionnaires regarding self-reported social support, decision latitude at work and life-style-factors.
The distribution of answers among controls were used to define exposure, thus for social support, those in the lowest quartile of social support were considered exposed to low social support and similarly for decision latitude, those in the lowest quartile were considered exposed to low decision latitude at work.
Using logistic regression, we first evaluated whether exposures associated with RA risk, considering potential confounding of established risk factors. Then, we investigated whether the frequency of those factors differed between individuals reporting low social support or low decision latitude at work or not, among cases and controls.

Results
There were 898 cases with low social support and 285 cases with low decision latitude at work (latter only available in first part of EIRA).
Low social support was not associated with RA risk in unadjusted analyses (OR= 1.05, 95%CI=0.95-1.15). Low decision latitude at work did associate with a higher RA risk in the unadjusted analyses (OR=1.52, 95% CI=1.20-1.94), but this association was no longer significant after further adjustment for smoking, obesity and university degree (adjusted OR=1.24, 95% CI=0.93-1.63). Associations between those life-style risk factors and RA were confirmed (no university degree, OR=1.50; smoking OR=1.71; obesity OR=1.15).
Next, we evaluated whether low social support or low decision latitude at work differed by previously established risk factors. Cases with RA reporting low sense of social support were more often men (OR=1.60, 95%CI=1.40-1.83), current smokers (OR=1.46, 95%CI=1.26-1.70), obese (OR=1.29, 95%CI=1.09-1.54), physically inactive (OR=2.78, 95%CI=1.98-3.90) and without a university-degree (OR=2.04, 95%CI=1.77-2.36); with similar pattern among the controls. For working-conditions, cases reporting low decision latitude at work were also more often current smokers (OR=2.05, 95%CI=1.33-3.16) and with no university degree (OR=8.23, 95%CI=5.13-13.22), but less often male (OR = 0.40, 95%CI=0.26-0.60). Again, the pattern was similar among controls. RF/ACPA-positivity did not associate with low social support or low decision latitude.

Conclusion
Neither low social support nor low decision latitude at work were associated with an increased risk of RA after adjustment for other known lifestyle risk factors for RA. An initial crude association between low decision latitude at work and risk for RA was explained by differences in smoking and educational level. However, both low social support and low decision latitude at work associate strongly with known, and here validated, risk factors for RA (smoking, obesity, no university degree) with similar pattern among both cases and controls.

14 DISEASE ACTIVITY TRAJECTORIES IN RHEUMATOID ARTHRITIS – A TOOL FOR PREDICTION OF OUTCOME

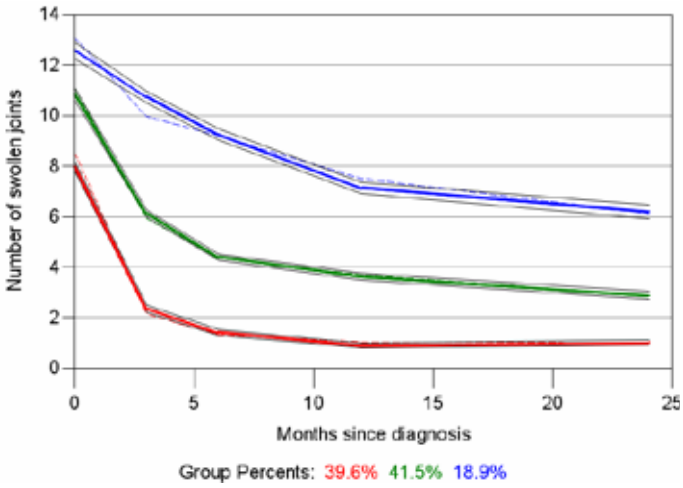
Kontaktinformation: Inger Gjertsson, inger.gjertsson@rheuma.gu.se

Monica Leu Agelii[1], Maria L. E. Andersson[2], Bobby L. Jones[3], Christopher Sjöwall[4], Alf Kastbom[4], Ingiäld Hafström[5], Inger Gjertsson[1], For the BARFOT study group

[1] Dept of Rheumatology and Inflammation Research, Sahlgrenska Academy, Gothenburg University, Gothenburg
[2] Faculty of Medicine, Department of Clinical Sciences Lund, Rheumatology, Lund University, Lund
[3] Department of Psychiatry, University of Pittsburgh Medical Center, Pittsburgh, United States of America
[4] Department of Rheumatology and Department of Clinical and Experimental Medicine, Linköping University, Linköping
[5] Division of Gastroenterology and Rheumatology, Department of Medicine Huddinge, Karolinska Institutet and Karolinska University Hospital, Stockholm

Background
Predicting treatment response and disease progression in rheumatoid arthritis (RA) remains an elusive endeavour [1]. Part of the problem is lacking the means for identifying subgroup of patients with a similar disease course over time. Response criteria such as EULAR give only a snapshot of patients' health at a specific time point and they are not fit to this challenge.
We propose a longitudinal approach that identifies subgroups of patients while capturing their evolution across several clinical outcomes simultaneously.

Patients and methods
For exploration, the RA cohort BARFOT (n=2829) was used to identify 24-month post-diagnosis simultaneous trajectories of disease activity score (DAS28) and its components. Measurements were available at inclusion (0), 3, 6, 12, 24 and 60 months. Multi-trajectories were found with latent class growth modelling [2, 3]. For validation, the TIRA-2 cohort (n=504) was used. Radiographic changes at the end of follow-up, assessed by the modified Sharp van der Heijde score, were correlated with trajectory membership.



Results
Three multi-trajectories were identified, with 39.6% of the patients in the lowest, 41.5% in the middle and 18.9% in the highest (worst) trajectory. The clinical components that drive upward the DAS28 evolution the most were the erythrocyte sedimentation rate followed closely by tender joint count. Patients in the worst trajectory had on average 8 tender and 6 swollen joints after 24 months (Figure 1). Radiographic changes at 24 and 60 months were significantly increased from the lowest to the highest trajectory.

Conclusion
Multi-trajectories constitute a powerful tool for identifying subgroups of RA patients based on several clinical characteristics simultaneously. Trajectories are stable measures of disease evolution over time. They can be used in future studies that aim to identify predictive biomarkers for disease progression.

15 RITUXIMAB SOM BEHANDLING AV REUMATOID ARTRIT I DALARNA – EN KARTLÄGGNING AV PERIODEN JUNI 2012 – DECEMBER 2016

Kontaktinformation: Elin Staffas, elin.staffas@ltdalarna.se

Elin Staffas1, Jörgen Lysholm1, Anna Svärd1
1Reumatologi Dalarna, Falu lasarett, Falun

Bakgrund
Reumatologi Dalarna, Falu lasarett, behandlar samtliga vuxna patienter med diagnos Reumatoid artrit (RA) i Dalarna. Rituximab har använts i högre utsträckning hos oss än i andra delar av Sverige och rationalen har dels varit god klinisk erfarenhet men även ekonomiska incitament. Diskussionen har kommit upp på kliniken om vi väljer läkemedlet till särskilda patientgrupper, till exempel äldre patienter, och även om den goda behandlingseffekt vi tyckt oss se kan bekräftas.

Syfte
Att kartlägga karaktäristika och behandlingseffekt hos patienter med RA som får behandling med rituximab samt jämföra med patienter som får annan biologisk behandling.

Material och metoder
Vi identifierade via SRQ (svensk reumatologis kvalitetsregister) totalt 134 patienter med RA-diagnos som, via Reumatologi Dalarna Falu lasarett, påbörjat behandling med rituximab under tidsperioden 2012-06-01 – 2016-12-31. Via journalgenomgång registrerades bakgrundskaraktäristika för varje patient vid start respektive behandlingseffekt vid utvärdering efter 3-6 månader (medelvärde 4.7 månader). För jämförelse identifierades även totalt 147 patienter (SRQ) som startat annan biologisk behandling under aktuell tidsperiod. DAS28CRP vid både start och uppföljning efter 3-6 månader fanns för 89 patienter i kontrollgruppen respektive 67 patienter i rituximabgruppen. Parametrar som jämfördes mellan grupperna (89+67 patienter) var ålder vid behandlingsstart, kön, sjukdomsaktivitet vid behandlingsstart, antal tidigare biologiska läkemedel samt DAS28CRP vid uppföljning. Vid beräkning användes Chi-2-test respektive Mann-Whitney-U-test.

Resultat
Av de patienter som påbörjade behandling med rituximab under den aktuella perioden fick 45 procent det som sitt första biologiska läkemedel. Av dessa hade 58 procent samtidig behandling med methotrexate och 16.5 procent hade en registrerad kontraindikation mot TNF-hämmare. Endast en individ (0.8%) var konstaterat antikroppsnegativ (RF och anti-CCP).
De som fick behandling med rituximab var äldre än de som fick behandling med annat biologiskt preparat (median 65 respektive 59 år, p = 0.01). Andelen kvinnor var likartat (82 procent respektive 79 procent, p = 0.59). Sjukdomsaktiviteten vid behandlingsstart var jämförbar hos de patienter som fick rituximab och hos de patienter som fick annan biologisk behandling (median DAS-28CRP = 4.61 respektive 4.49, p = 0.62). Antal tidigare biologiska läkemedel var högre i rituximabgruppen, medel 1.03 jämfört med 0.82 stycken (p = 0.03).
DAS28CRP vid utvärdering var högre i rituximabgruppen median 2.85 jämfört med 2.45 i kontrollgruppen (p < 0.01). Andelen som uppnådde låg sjukdomsaktivitet (DAS28 < 3.2) var 65 procent i rituximabgruppen jämfört med 82 procent i gruppen som fick behandling med annat biologiskt läkemedel (p = 0.01). Andelen som uppnådde remission (DAS28 ≤ 2.6) var 40 respektive 58 procent (p = 0.02).

Slutsats
De patienter som fick behandling med rituximab var äldre och var i mycket hög utsträckning antikroppspositiva. Sjukdomsaktiviteten vid utvärdering efter 3-6 månader var lägre i kontrollgruppen än i gruppen som fått behandling med rituximab. Man kan spekulera om skillnaden i behandlingsresultat kan förklaras av exempelvis åldersfördelning, selektion av patienter som provat fler tidigare biologiska läkemedel, tidpunkt för behandlingsutvärdering, dosering av rituximab eller val av strategi för återbehandling.

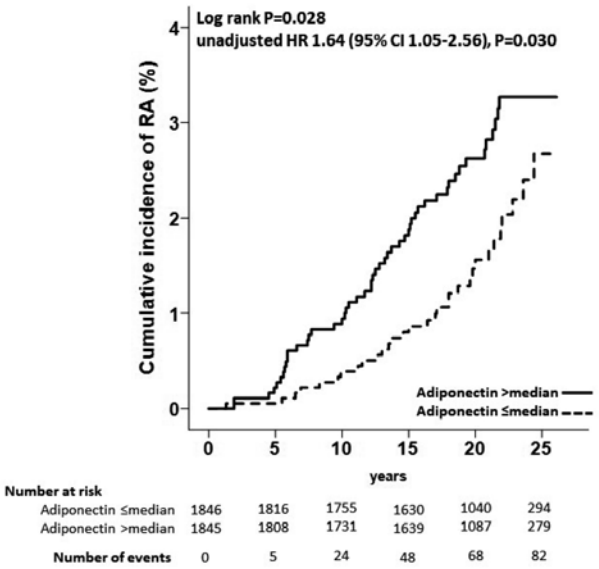
16 BASELINE ADIPONECTIN LEVELS PREDICT FUTURE DEVELOPMENT OF RHEUMATOID ARTHRITIS IN SUBJECTS WITH OBESITY

Kontaktinformation: Yuan Zhang, yuan.zhang@gu.se

Cristina Maglio1, Yuan Zhang[1], Christian Herder[2], Anna Rudin[1], Lena Carlsson[3]
[1]Department of Rheumatology and Inflammation research, Sahlgrenska Academy, University of Gothenburg, Gothenburg
[2]German Diabetes Center, Düsseldorf, Germany
[3]Department of Molecular and Clinical Medicine, Sahlgrenska Academy, University of Gothenburg, Gothenburg

Background
Adiponectin is a cytokine produced by the adipose tissue and is involved in both metabolic and inflammatory processes1. In obese subjects, serum adiponectin levels are surprisingly low2. On the contrary, adiponectin levels are increased in serum and synovial fluid of subjects with established rheumatoid arthritis (RA)1,3.

Figure 1. Cumulative incidence of RA in the SOS study stratified by baseline adiponectin



Objectives

By exploiting a longitudinal study enrolling more than 4000 obese subjects, we aim to determine if serum adiponectin levels are a risk factor for the development of RA in obese subjects.

Methods

The Swedish Obese Subjects (SOS) study is a longitudinal controlled trial on the effect of bariatric surgery on the incidence of obesity-related diseases. It includes 4047 obese subjects whereof 2010 underwent bariatric surgery and 2037 constituted the matched control group4,5. SOS study participants who developed RA were identified by searching the Swedish National Patient Register. Eleven subjects with prevalent RA at baseline are excluded by the analyses. Patients were followed up until diagnosis of RA, death, migration or end of follow-up (December 2016). Total adiponectin was measured using the Quantikine ELISA kit from Quantikine ELISA kit from Bio-Techne (Minneapolis, MN, USA).

Results

Adiponectin measurement at baseline was available for 3691 subjects. Among those subjects, 82 subjects developed RA during a follow up for up to 29 years. High serum adiponectin levels at baseline were associated with the incidence of RA, independently of bariatric surgery, sex, age, body-mass index, smoking, and C-reactive protein and erythrocyte sedimentation rate levels (adjusted Hazard Ratio HR per 10 µg/mL adiponectin 1.70, 95% confidence interval CI 1.12-2.60, P value=0.01). When stratifying the population according to the median of baseline adiponectin, subjects with adiponectin greater than 6.8 µg/mL had a higher risk to develop RA during follow up (log-rank P 0.028, unadjusted HR 1.64, 95% CI 1.05-2.56, P=0.03, Figure 1).

Conclusions

In a large cohort of obese subjects followed up for up to 29 years, serum adiponectin levels were associated with the incidence of RA years before the onset of clinical signs. The association between adiponectin and the incidence of RA was independent of other risk factors, including C-reactive protein, smoking and bariatric surgery.

References

1. Fantuzzi G. Adiponectin in inflammatory and immune-mediated diseases. Cytokine 2013;64:1-10.
2. Hotta K, Funahashi T, Arita Y, et al. Plasma concentrations of a novel, adipose-specific protein, adiponectin, in type 2 diabetic patients. Arterioscler Thromb Vasc Biol 2000;20:1595-9.
3. Lee YH, Bae SC. Circulating adiponectin and visfatin levels in rheumatoid arthritis and their correlation with disease activity: A meta-analysis. Int J Rheum Dis 2018;21:664-72.
4. Sjöström L, Larsson B, Backman L, et al. Swedish obese subjects (SOS). Recruitment for an intervention study and a selected description of the obese state. Int J Obes Relat Metab Disord 1992;16:465-79.
5. Sjöström L, Narbro K, Sjöström CD, et al. Effects of bariatric surgery on mortality in Swedish obese subjects. N Engl J Med 2007;357:741-52.

17 IN OVERWEIGHT SUBJECTS, SERUM ADIPONECTIN PREDICTS THE DEVELOPMENT OF RHEUMATOID ARTHRITIS INDEPENDENTLY OF OTHER ADIPOKINES

Kontaktinformation: Yuan Zhang, yuan.zhang@gu.se

Yuan Zhang[1], Linda Johansson[2], Anna Rudin[1], Lena Carlsson[3], Solbritt Rantapää-Dahlqvist[2], Cristina Maglio[1]

[1] Department of Rheumatology and Inflammation research, Sahlgrenska Academy, University of Gothenburg, Gothenburg
[2] Public Health and Clinical Medicine/Rheumatology, Umeå University, Umeå
[3] Department of Molecular and Clinical Medicine, Sahlgrenska Academy, University of Gothenburg, Gothenburg

Background

Adipokines, such as adiponectin, leptin, resistin and visfatin, are cytokines produced by the adipose tissue and involved in metabolism and inflammation1. Adiponectin is elevated in both serum and synovial fluid of subjects with rheumatoid arthritis (RA), suggesting a possible role of this adipokine in the pathogenesis of RA 2,3. Circulating levels of leptin, resistin, and visfatin are also higher in subjects with RA compared to controls 2,4.

Objectives

Aim of this study was to determine if adiponectin, leptin, resistin, and visfatin predict the development of RA.

Methods

Two nested-case control studies were performed including pre-symptomatic participants of two cohorts from Sweden: the Swedish Obese Subjects (SOS) study and a cohort of individuals identified within the Medical Biobank of northern Sweden. The SOS is a clinical trial including 4047 subjects with obesity5. During a follow-up for up to 29 years, 92 subjects developed RA. Among those 92 subjects, 82 subjects with available serum at baseline were matched 1:5 with 410 subjects who did not develop RA during follow-up. Matching was based on baseline age, sex, body-mass index, bariatric surgery yes/no, year of inclusion, and smoking. A nested case-control study of 88 sex- and age-matched pairs was performed within the Medical Biobank of Northern Sweden using blood samples donated before the onset of the first RA symptoms. The pre-dating time before onset of symptoms of RA was 8.5±5.0 years6.
Baseline serum levels of adiponectin, leptin, resistin, and visfatin were measured using the Quantikine ELISA kit. Visfatin could not be measured in the Biobank cohort, due to lack of serum. Both binary logistic as well as conditional logistic regression analyses were used to determine if adipokines were elevated years before the onset of RA.

Results
In a multivariable analysis including adiponectin, leptin, resistin, visfatin performed in the SOS cohort, serum adiponectin was associated with a higher risk for RA independently of other adipokines (Odds ratio, OR, 1.1, 95% confidence interval, CI, 1.0-1.1, p value=0.01). Leptin, resistin and visfatin levels were not associated with the risk of RA.
In the Biobank cohort, no association between adipokines and risk for RA was detected. However, when stratifying the population according to BMI, in the subgroup having BMI>25 (n=109), adiponectin levels were associated with higher risk for RA (OR 1.2, 95% CI 1.0-1.36, p=0.03), independently of leptin and resistin levels. Virtually the same results were obtained in both the SOS and the Biobank cohorts when conditional logistic regression analysis was used.

Conclusions
Our results suggest that higher serum adiponectin levels predict the development of RA in subjects with overweight/obesity.

References
1. Kwon H, Pessin JE. Adipokines mediate inflammation and insulin resistance. Front Endocrinol (Lausanne) 2013;4:71.
2. Otero M, et al. Changes in plasma levels of fat-derived hormones adiponectin, leptin, resistin and visfatin in patients with rheumatoid arthritis. Ann Rheum Dis 2006;65:1198-201.
3. Fantuzzi G. Adiponectin in inflammatory and immune-mediated diseases. Cytokine 2013;64:1-10.
4. Huang Q, et al. Serum resistin levels in patients with rheumatoid arthritis and systemic lupus erythematosus: a meta-analysis. Clin Rheumatol 2015;34:1713-20.
5. Sjöström L, et al. Effects of bariatric surgery on mortality in Swedish obese subjects. N Engl J Med 2007;357:741-52.
6. Johansson L, et al. Antibodies directed against endogenous and exogenous citrullinated antigens pre-date the onset of rheumatoid arthritis. Arthritis Res Ther 2016;18:127.

18 CD21-/LOW B CELLS ASSOCIATE WITH JOINT DESTRUCTION IN PATIENTS WITH MANIFEST RHEUMATOID ARTHRITIS

Kontaktinformation: Katrin Thorarinsdottir, katrin.thorarinsdottir@vgregion.se

Katrin Thorarinsdottir[1], Alessandro Camponeschi[1], Lennart Jacobsson[1], Kristina Forslind[2], Inga-Lill Mårtensson[1], Inger Gjertsson[1]

[1] Dept of Rheumatology and Inflammation Research, Gothenburg University, Gothenburg
[2] Department of Clinical Sciences, Section of Rheumatology, Lund University, Lund and Helsingborg

Background
The success of B-cell depleting therapy as well as the negative prognostic value of anti-citrullinated protein antibodies (ACPA) suggests an important role of B cells in rheumatoid arthritis (RA). However, the phenotype of the putative pathogenic B cell is unknown. Studies have reported an enrichment of B cells lacking or with low surface levels of the complement receptor 2, CD21 (CD21-/low B cells) in chronic infections and autoimmune diseases.

Objectives
Our aim was to study the CD21-/low B cell subpopulations in peripheral blood and synovial fluid of patients with manifest RA and whether these B cell populations associate to disease duration, activity, autoantibody profile or joint destruction.

Methods
Patients with manifest RA (n=32) were included at the Sahlgrenska Rheumatology clinic. The patients' clinical response (DAS28), joint destruction on radiographs of hands and feet, autoantibodies and B-cells were assessed. Flow cytometry was used for the analysis of cellular surface markers on leukocytes in peripheral blood: CD19, CD21, CD23, CD27, CD24, CD38, IgG, IgD, IgM, CD11c, RANKL, FcRL4. Non-parametric tests were used for comparing groups and Spearman's test was used for correlation. Age- and sex-matched healthy donors (n=11) were recruited.

Results
There was an increase in the proportion of CD21-/low memory B cell population, CD27-IgD- (46%) in the peripheral blood of ACPA/RF positive RA patients compared to ACPA/RF negative patients (42%) and HD (33%) (p=0.02). The CD21-/low CD27-IgD- B cell populations correlated with joint destruction in ACPA/RF positive RA patients (r=0.57, p=0.046). In synovial fluid the CD21-/low CD27-IgD- comprise the majority of B cells and around 25% of these cells express RANKL.

Conclusions
Our results suggest that the CD21-/low CD27-IgD- cells could play a role in the joint destruction of RA patients. A potential mechanism is through RANKL, which is known to promote osteoclastogenesis that in turn can lead to bone erosions. Further research is needed on the function and cytokine production of CD21-/low CD27-IgD- cells.

19 SECRETORY ANTIBODIES TO CITRULLINATED PEPTIDES IN PLASMA AND SALIVA FROM RHEUMATOID ARTHRITIS PATIENTS AND THEIR UNAFFECTED FAMILY MEMBERS

Kontaktinformation: Anna Svärd, anna.svard@ltdalarna.se

Anna Svärd[1], Karin Roos Ljungberg[2], Mikael Brink[3], Alf Kastbom[2, 4], Solbritt Rantapää Dahlqvist[3]

[1] Department of Rheumatology and Center for Clinical Research Dalarna, Uppsala University, Falun
[2] Department of Clinical and Experimental Medicine, Linköping University, Linköping
[3] Department of Public Health and Clinical Medicine, Rheumatology, Umeå University, Umeå
[4] Department of Rheumatology, Linköping University, Linköping

Background
Mucosal involvement in early phases of rheumatoid arthritis (RA) pathophysiology has emerged as an attractive hypothesis, supported by several findings. Elevated levels of antibodies against citrullinated peptides/proteins (ACPA) can be found during a long pre-symptomatic period, preceding manifest arthritis. Secretory antibodies are produced at mucosal surfaces, but can also be detected in the circulation. Secretory ACPA in plasma has been demonstrated in patients with RA (1). First-degree relatives (FDRs) of patients with RA can be regarded as potential pre-RA patients or at-risk individuals. In a previous study, a higher prevalence of ACPA was found in FDRs than in healthy controls (2), with IgA-ACPA being more common than IgG-ACPA.
We hypothesized that formation of secretory ACPA is an early step in RA development, preceding the occurrence of regular non-secretory ACPA, and consequently secretory ACPA would be prevalent in a large proportion of FDRs.

Objective
To evaluate secretory ACPA in plasma and saliva from patients with RA and FDRs.

Table 1. Demographic and laboratory characteristics of the study participants

	FDRs (n=191)	RA patients (n=194)	P value
Age (years), median (IQR)	60 (26)	66 (18.3)	<0.001
Female n (%)	111 (58.1)	136 (70.1)	0.014
Shared epitope, n (%)	83 (53.9)	116 (71.2)	0.001
Smoker ever, n (%)	81 (47.9)	109 (58.0)	0.057
IgG ACPA+, n (%)	34 (21.7)	140 (85.9)	<0.001
IgA ACPA+, n (%)	42 (26.8)	118 (72.4)	<0.001
IgM ACPA+, n (%)	35 (22.3)	74 (45.4)	<0.001
Secretory ACPA+, n (%)	2 (1)	37 (19.1)	<0.001
IgM RF+, n (%)	22 (14)	121 (74.2)	<0.001
IgA RF+, n (%)	35 (22.3)	123 (75.5)	<0.001

Table 2. Performance of circulating antibodies to identify patients with RA vs first-degree relatives

	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)
Secretory ACPA+, n (%)	19.1	99.0	94.9	54.6
IgG ACPA+, n (%)	72.2	82.2	80.5	74.4
IgA ACPA+, n (%)	60.8	78.0	73.8	66.2
IgM ACPA+, n (%)	38.1	81.7	67.9	56.5
IgM RF+, n (%)	62.4	88.5	84.6	69.8
IgA RF+, n (%)	63.4	81.7	77.8	68.7

Methods

We analyzed secretory antibodies to 2nd generation cyclic citrullinated peptides (anti-CCP) in plasma from 194 patients with RA and 191 FDRs unaffected by RA and saliva samples from 25 RA patients, 21 first-degree relatives and 11 controls.

In plasma, cutoff for secretory ACPA was set at the 99th percentile of healthy blood donors. In saliva, a positive test was defined as a difference between optical density values for IgA anti-CCP and IgA anti-cyclic arginine peptide (delta OD value) >2 SD above the mean delta OD value of the controls.

The presence of secretory ACPA was compared between subject categories, and related to genetic and environmental risk factors. Mann-Whitney U test was used for continuous variables and Pearson Chi-square for categorical variables.

Results

Secretory ACPA occurred in 37 (19.1%) of RA patients but only in 2 (1%) of FDRs (table 1). IgA ACPA in saliva was found in 3/25 (12%) of patients with RA, but not in any of the 21 FDRs (<5%). 27% of FDRs were positive for regular non-secretory IgA ACPA in plasma, and out of them, only 2 individuals (5%) were positive for secretory ACPA in plasma. Among FDRs negative for regular ACPAs, no one was positive for secretory ACPA. Secretory ACPA had the highest PPV for identifying patients, while IgG ACPA had the highest negative predictive value (table 2).

Conclusion

Secretory ACPA in plasma and saliva was rare among FDRs, even among FDRs positive for conventional ACPA of non-mucosal origin. This implies that mucosal production of ACPA may not constitute a very early step in RA pathogenesis, but may rather be important in the transition from increased risk to actual RA disease.

References

1. Roos K et al. Arthritis Res Ther. 2016;18(1):119.
2. Young KA et al. Arthritis Rheum. 2013;65(8):1995-2004.

20 LOW ENERGY FRACTURES IN RHEUMATOID ARTHRITIS – ASSOCIATIONS WITH GENES AND CLINICAL CHARACTERISTICS

Kontaktinformation: Lotta Ljung, lotta-ljung@umu.se

Lotta Ljung[1], Kristina Wiberg[1], Lisbeth Ärlestig[1], Solbritt Rantapää Dahlqvist[2]

[1] Institutionen för folkhälsa och klinisk medicin/Reumatologi, Umeå Universitet, Umeå
[2] Institutionen för folkhälsa och klinisk medicin, Umeå Universitet, Umeå

Background

Patients with rheumatoid arthritis (RA) have increased risk of osteoporosis and low-energy fractures. Several genes associated with bone mineralization, osteoporosis or risk of fracture in the general population have been identified.

Objectives

To analyse the association between nine selected SNPs and the risk of low-energy fracture, taking clinical patient characteristics into account.

Methods

We identified a cohort of patients (n=896, 70% women, age at inclusion 60.0±14.8 years) with RA according to ACR criteria from the catchment area of the register of Umeå injury database, Umeå, Sweden, which enabled identification of low-energy fractures (n=254). The follow-up (mean 8.8±6.1 years, total 7928 person-years) started two years after RA diagnosis but not earlier than January 1, 1993 and ended at the first of December 31, 2011, death or the first low-energy fracture. Nine SNPs were analysed in all patients with available DNA-samples (n=667) using KASPTM genotyping assays (LGC genomics Ltd, Hoddesdon, UK): rs3801387 (WNT16), rs6666455 (SOAT), rs3736228 (LRP5), rs4796995 (FAM210A), rs4792909 (SOST), rs2062377 (TNFRSF11B/OPG), rs884205 (TNFRSF11A/RANK), rs9533090 (TNFSF11/RANKL), and rs1373004 (DKK1). Anti-CCP was analysed and clinical patient characteristics (duration of RA, ever smoking, disease activity the first two years after RA diagnosis, and joint erosions) were extracted from patient files. Associations between the risk of fracture and risk alleles in the cohort were evaluated using Kaplan-Meier curves (K-M) and Cox proportional hazards models: crude, adjusted for age and sex, and for clinical patient characteristics.

Results

The SNPs: rs1373004, rs4792909, and rs2062377 were associated with the risk of fracture in K-M analyses (Figure 1). For the other genes no significant associations were observed. Patients carrying the risk allele of rs1373004 (22.6% of the patients), or who were homozygous for the risk allele of SNP rs4792909 (38.6%), had a >50% higher risk of low-energy fracture compare to other patients, irrespectively of disease characteristics (Table 1). The association between rs2062377 and the risk of fracture was not independent of clinical patient characteristics (Table 1).

Conclusion

Genes related to bone metabolism may have a considerable contribution to the already high risk of low-energy fractures in RA.

References

Estrada K, et al. Nat Genet 2012, Baron R & Kneissel M. Nat Med 2013

Figure 1. Probability of fracture-free survival related to three SNPs in patients with RA

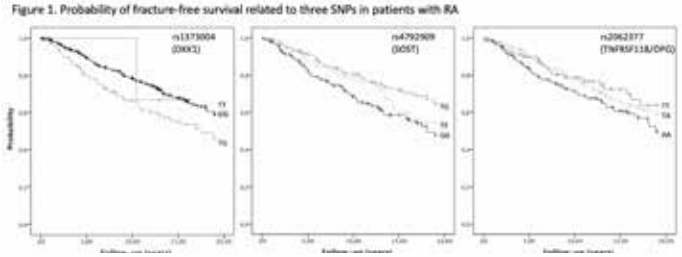


Table 1. Cox proportional hazards models estimating the risk of low-energy fracture associated with SNPs in patients with RA

	Freq	HR1*	95% C.I.	HR2*	95% C.I.	HR3*	95% C.I.
rs1373004, T-carrier	22.6%	1.61	1.16;2.22	1.61	1.16;2.22	1.68	1.17;2.41
rs4792909, GG vs. TT+TG	38.6%	1.59	1.19;2.14	1.53	1.13;2.05	1.54	1.12;2.13
r2062377, AA vs. TA+TT	35.7%	1.36	1.01;1.83	1.28	0.81;1.59	1.19	0.86;1.65

*Hazard ratio (HR)1=crude model, HR2= adjusted for age at inclusion and sex, HR3=adjusted for age at inclusion, sex, duration of RA, anti-CCP positivity, ever smoking, disease activity the first two years after RA diagnosis, and erosive disease.

21 PREDICTORS OF EROSION AND JOINT SPACE NARROWING PROGRESSION IN PATIENTS WITH EARLY RHEUMATOID ARTHRITIS

Kontaktinformation: Emil Rydell, emil.rydell@med.lu.se

Emil Rydell[1, 2], Kristina Forslind[3, 4], Jan-Åke Nilsson[1, 2], Lennart Jacobsson[1, 5], Carl Turesson[1, 2]

[1] Rheumatology, Department of Clinical Sciences, Malmö, Lund University, Malmö
[2] Rheumatology, Skåne University Hospital, Malmö
[3] Rheumatology, Department of Clinical Sciences, Helsingborg, Lund University, Helsingborg
[4] Research and Education, Helsingborg Hospital, Helsingborg
[5] Rheumatology and Inflammation Research, Sahlgrenska Academy at Gothenburg University, Göteborg

Background
Joint damage in rheumatoid arthritis (RA) includes erosions and joint space narrowing (JSN). Predictors of these processes, and the underlying mechanisms, require further study [1].

Objectives
To investigate the relation between patient characteristics at RA diagnosis and progression of erosions and JSN, over 5 years.

Methods
Consecutive early RA patients (symptom duration 12 U/L) were both associated with progression of erosions ((B= 0.12, p= 0.016) and (B= 0.12, p= 0.02) respectively) but not JSN, in adjusted analyses (Table 1). Overweight or obesity (BMI >25kg/m2) was associated with less progression of JSN (B= -0.14, p= 0.018, adjusted for RF, age and baseline JSN score).

Conclusion
RF, anti-CCP and markers of inflammation and disease activity predicted progression of erosions and JSN, in particular erosions. Development of erosions may predate cartilage damage leading to JSN. Smoking and high baseline levels of COMP predicted progression of erosions, but not JSN. Overweight and obesity may be associated with mechanisms that protect from JSN.

References
[1] Smolen et al, Ann Rheum Dis. 2009;68:1535-40. [2] Rydell et al, Arthritis Res Ther. 2018;20:82.

Table 1. Baseline predictors of progression of erosion and JSN scores (log transformed) from baseline to 5 years in linear regression

	Erosion score				JSN score			
Baseline characteristics	Crude		Adjusted for RF and baseline erosion score		Crude		Adjusted for RF, age and baseline JSN score	
	B	p	B	p	B	p	B	p
Age (per SD)	0.02	0.39	0.02	0.45	0.06	0.051	NA	NA
Overweight or obese vs. normal BMI[a]	-0.05	0.34	-0.03	0.62	-0.14	0.03	-0.14	0.018
Ever vs. never smokers	0.16	0.004	0.12	0.016	0.05	0.49	0.06	0.33
RF positivity	0.23	<0.001	NA	NA	0.18	0.004	NA	NA
Anti-CCP positivity	0.23	<0.001	0.13	0.02	0.17	0.008	0.09	0.18
COMP >12 U/L	0.10	0.08	0.12	0.02	0.08	0.24	0.08	0.23
Erosion score (per SD)	0.07	0.006	NA	NA	0.12	<0.001	0.08	0.02
JSN score (per SD)	0.04	0.12	-0.01	0.69	0.11	<0.001	NA	NA
High vs. moderate DAS28[b]	0.17	0.003	0.12	0.03	0.14	0.04	0.12	0.054
ESR (per SD)	0.11	<0.001	0.08	0.002	0.09	0.003	0.06	0.04
CRP >9 mg/l (median)[c]	0.15	0.003	0.09	0.08	0.13	0.03	0.07	0.26

22 SAFETY PROFILE OF BARICITINIB FOR THE TREATMENT OF RHEUMATOID ARTHRITIS UP TO 7 YEARS: AN UPDATED INTEGRATED SAFETY ANALYSIS

Kontaktinformation: Esbjörn Larsson, larsson_esbjoern@lilly.com

Mark C Genovese[1], Josef S Smolen[2], Tsutomu Takeuchi[3], Gerd Burmester[4], Terence P Rooney[5], Jinglin Zhong[6], Daojun Mo[5], Chadi Saifan[5], Anabela Cardoso[5], Maher Issa[5], Wen-Shuo Wu[5], Kevin L Winthrop[7], Esbjörn Larsson[5] (Presenter only)

[1] Division of Immunology and Rheumatology, Stanford University, Palo Alto, CA, USA
[2] Division of Rheumatology, Department of Medicine, Medical University of Vienna, Vienna, Austria
[3] Division of Rheumatology, Department of Internal Medicine, Keio University School of Medicine, Tokyo, Japan
[4] Department of Rheumatology and Clinical Immunology, Charité-University Medicine Berlin, Free University and Humboldt University Berlin, Berlin, Germany
[5] Eli Lilly and Company, Indianapolis, IN, USA
[6] IQVIA, Morrisville, NC, USA
[7] Oregon Health Sciences University, Portland, OR, USA

Background
Baricitinib (bari), is an oral, selective inhibitor of Janus kinase (JAK) 1/JAK 2, to treat moderately to severely active RA in adults.

Table

	Placebo-controlled (to Week 24)		2-mg – 4-mg extended			All-Bari-RA
	Placebo (N=1215)	Bari 2-mg (N=479)	Bari 4-mg (N=1142)	Bari 2-mg (N=479)	Bari 4-mg (N=479)	(N=3770)
Exposure						
Total patient-years	450.8	185.8	471.8	675.6	698.6	10127
Median duration, days	166	168	169	257	342	1115
Longest exposure, days	235	197	211	1805	2520	2520
≥1 AE, n (EAIR)						
TEAE	748 (165.9)	316 (170.1)	803 (170.2)	378 (55.9)	417 (59.7)	3332 (32.9)
Serious adverse event including death	54 (12.0)	18 (9.7)	58 (12.3)	62 (9.2)	84 (12.0)	786 (7.8)
Temporary interruption due to AE	98 (21.7)	50 (26.9)	117 (24.8)	108 (16.0)	118 (16.9)	1111 (11.02)
Permanent discontinuation from the study drug due to AE	37 (8.2)	20 (10.8)	50 (10.6)	39 (5.7)	59 (8.3)	426 (4.2)
Death, n (IR)	2 (0.4)	0	3 (0.6)	1 (0.2)	4 (0.6)	44 (0.4)
Malignancy, n (IR)						
Malignancy excluding NMSC						
As treated	2 (0.4)	1 (0.5)	2 (0.4)	3 (0.4)	10 (1.4)	85 (0.8)
As randomized				12 (0.8)	14 (1.0)	
Lymphoma	0	0	0	0	1 (0.1)	8 (0.1)
NMSC	1 (0.2)	0	3 (0.6)	2 (0.3)	8 (1.1)	37 (0.4)
Infections, n (IR)						
Serious infection	19 (4.1)	8 (4.2)	19 (4.0)	21 (3.1)	32 (4.6)	283 (2.8)
Herpes zoster	4 (0.9)	6 (3.1)	18 (3.8)*	18 (2.7)	27 (3.9)	323 (3.3)
Tuberculosis	0	0	1 (0.2)	0	7 (0.5)	15 (0.2)
Opportunistic infection including MD HZ[a]	2 (0.5)	0	4 (0.9)	2 (0.3)	3 (0.4)	52 (0.5)
Adverse cardiovascular events of special interest, n (IR)						
Major adverse cardiovascular events	2 (0.5)	0	3 (0.7)	2 (0.3)	2 (0.3)	51 (0.5)
DVT/PE	0	0	6 (1.3)	4 (0.6)	4 (0.6)	49 (0.5)
DVT	0	0	3 (0.6)	4 (0.6)	2 (0.3)	35 (0.4)
PE	0	0	3 (0.6)	1 (0.2)	2 (0.3)	24 (0.2)
Gastrointestinal perforations, n (IR)	1 (0.2)	0	0	0	1 (0.14)	4 (0.04)

*$P \leq 0.05$ Bari 4-mg vs PBO

[a]No statistical comparisons were performed.

AE=adverse event; Bari=baricitinib; DVT=deep vein thrombosis; EAIR = exposure adjusted incidence rate; IR=incidence rate; MD=multidermatomal; NMSC=non-melanoma skin cancer;

Purpose
To update bari's safety profile with data from an additional Phase (Ph) 3 trial and on-going long-term extension (LTE) study.

Materials and methods: Long-term safety of once-daily bari was evaluated in the All-Bari-RA dataset: all patients (pts) exposed to any bari dose from 9 randomized trials (5 Ph3, 3 Ph2, 1 Ph 1b) and 1 LTE (data to 13-Feb-2018). Placebo (PBO) comparisons were evaluated to Week 24 from 7 Ph2/3 trials: pts randomized to PBO, bari 2-mg or 4-mg, with censoring at rescue/treatment switch. Dose responses were evaluated in the 2-mg/4-mg extended dataset from 4 Ph2/3 trials: pts randomized to 2- or 4-mg, LTE data included; data censored at rescue/dose change (as-treated analysis) and, due to latent period for malignancy, analyzed without censoring (as-randomized analysis). Incidence rates per 100 patient-years (PY) were calculated.

Results
3770 pts received bari (10127 PYs); maximum exposure was 7 yrs (Table). No significant differences were seen for bari 4-mg vs PBO in adverse events leading to permanent drug discontinuation, death, malignancy, serious infection, or major adverse cardiovascular events. Herpes zoster IR was significantly higher for bari 4-mg vs PBO (3.8 vs 0.9) and numerically higher for bari 2-mg (3.1). IRs for deep vein thrombosis/pulmonary embolism were numerically higher in bari 4-mg vs PBO; IRs were similar by dose in 2-mg/4-mg-extended dataset. Malignancy (excluding non-melanoma skin cancer) IRs were 0.8 (2-mg) and 1.0 (4-mg; as-randomized analysis). Fewer than 1% of pts discontinued due to abnormal laboratory results.

Conclusion
In this updated integrated analysis of pts with active RA exposed to bari for up to 7 yrs, across safety topics, bari maintained a safety profile similar to that previously reported1 and acceptable in the context of demonstrated efficacy.

References
1. Smolen JS et al. J Rheumatol. 2019;46:7-18.

23 IRRITABLE BOWEL SYNDROME SYMPTOMS IN AXIAL SPONDYLOARTHRITIS AND HEALTHY CONTROLS, AND THEIR RELATION TO DISEASE CHARACTERISTICS – IS IT AN OVERLOOKED COMORBIDITY?

Kontaktinformation: Johan Karlsson Wallman, johan.81.karlsson@gmail.com

Johan K Wallman[1, 2], Elisabeth Mogard[1, 2], Jan Marsal[3, 4], Kristofer Andréasson[1, 2], Anna Jöud[5], Mats Geijer[6], Lars-Erik Kristensen[7], Elisabet Lindqvist[1], [2], Tor Olofsson[1, 2]

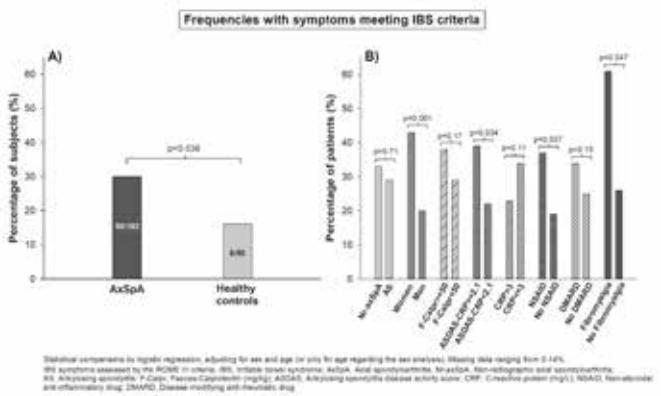
[1] Institutionen för Kliniska Vetenskaper Lund, Reumatologi, Lunds Universitet, Lund
[2] Sektion Reumatologi, Skånes Universitetssjukhus, Lund
[3] Institutionen för Kliniska Vetenskaper Lund, Gastroenterologi, Lunds Universitet, Lund
[4] Sektion Gastroenterologi, Skånes Universitetssjukhus, Lund
[5] Avdelningen för Arbets- och Miljömedicin, Lunds Universitet, Lund
[6] Institutionen för Kliniska Vetenskaper, Avdelningen för Radiologi, Sahlgrenska Akademin, Göteborgs Universitet, Göteborg
[7] Parker Institutet, Köpenhamn, Danmark

Background
While inflammatory bowel disease (IBD) is a well-known comorbidity in axial spondyloarthritis (axSpA), little is known about the prevalence, drivers and impact of irritable bowel syndrome (IBS). In the general population, the IBS prevalence has been estimated to ~11%.[1]

Objectives
To compare the frequency of gut symptoms meeting IBS criteria between axSpA patients and controls, and to examine how such symptoms relate to disease characteristics.

Materials and Methods
Consecutive axSpA patients were examined and classified as non-radiographic axial SpA (nr-axSpA; ASAS criteria; n=63) or ankylosing spondylitis (AS; modified New York criteria; n=119), excluding cases with known IBD. Proportions reporting gut symptoms meeting the ROME III IBS criteria were compared between axSpA patients and sex and age matched controls (without rheumatic disease or IBD; n=50) by logistic regression. [2] Within the axSpA group, separate logistic regression models were also applied to examine whether the presence of IBS symptoms differed according to disease subtype (nr-axSpA/AS), sex, disease activity, level of systemic and gut inflammation, NSAID and DMARD use, and comorbid fibromyalgia (according to the 1990 fibromyalgia criteria).[3] Finally, we analysed associations between the presence of IBS symptoms and standard patient-reported axSpA outcomes and evaluator´s VAS global assessment of disease activity. All analyses were sex and age adjusted.

Results
Symptoms meeting IBS criteria were significantly more common among axSpA patients (30%) than controls (16%; OR 2.5 [95%CI 1.1-5.7]; Figure 1A). Within the axSpA group, no difference was observed between nr-axSpA and AS (Figure 1B). Furthermore, no associations were observed with markers of systemic or gut inflammation, whereas the presence of IBS symptoms was significantly more frequent among patients with higher disease activity (OR 2.2 [95%CI 1.1-4.5] for ASDAS-CRP ≥2.1 vs. <2.1), in females (OR 3.0 [1.5-5.8] vs. men), among NSAID users (OR 2.3 [1.1-4.6] vs. non-users), and in patients fulfilling fibromyalgia criteria (OR 3.0 [1.0-8.6] vs. not); Figure 1B). All patient-reported outcomes, but not evaluator´s VAS global, were significantly worse in patients reporting IBS symptoms (Table).



	No IBS symtoms n=127	IBS symptoms n=55	p-value *
VAS global (mm)	30 (25)	44 (25)	0.010
VAS pain (mm)	30 (26)	43 (26)	0.020
VAS fatigue (mm)	32 (27)	50 (27)	0.001
EQ-5D utility †	0.75 (0.22)	0.61 (0.30)	0.004
BASFI	1.8 (2.2)	2.9 (2.2)	0.016
BASDAI	2.6 (2.1)	4.3 (2.1)	<0.001
Evaluator´s VAS global (mm)	16 (14)	19 (14)	0.569

Values are mean (SD). * Adjusted for sex and age by ANCOVA. † UK preference set. Missing data ranging from 3-9%.

Conclusions
In axSpA patients without an IBD diagnosis, gut symptoms meeting IBS criteria were twice as common as in healthy controls. While IBS symptoms do not appear to be driven by subclinical gut inflammation or systemic inflammation, the associations with criteria-assessed fibromyalgia, female sex, and worse levels of patient-reported outcomes indicate a link to central pain sensitization, although side effects of NSAIDs may also play a role.

References
1. Lovell RM, et al. Clin Gastroenterol Hepatol. 2012;10:712-21.
2. Drossman DA. Gastroenterology. 2006;130:1377-90. 3. Wolfe F, et al. Arthritis Rheum. 1990;33:160-72.

24 CLINICAL DIAGNOSES OF AXIAL SPONDYLOARTHRITIS SHOW A HIGH OVERALL CONCORDANCE WITH CLASSIFICATION CRITERIA FULFILMENT, BUT ARE LESS CONSISTENT FOR DIFFERENTIATION BETWEEN SUBTYPES IN AXIAL ESTABLISHED DISEASE: RESULTS FROM THE SPARTAKUS COHORT

Kontaktinformation: Elisabet Lindqvist, elisabet.lindqvist@med.lu.se

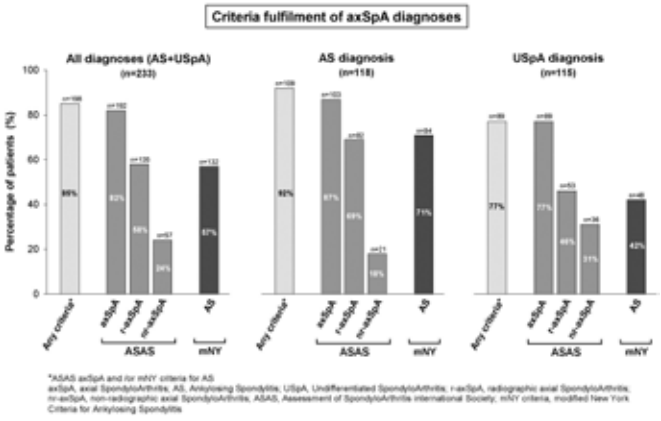
Elisabet Lindqvist1, Tor Olofsson1, Anna Jöud2, Mats Geijer3, Johan K Wallman1, Elisabeth Mogard1
1Skåne University Hospital, Department of Clinical Sciences Lund, Rheumatology, Lund University, Lund
2Division of Occupational and Environmental Medicine, Department of Laboratory medicine, Lund University, Lund
3Sahlgrenska Academy, Institute of Clinical Sciences, Department of Radiology, University of Gothenburg, Gothenburg

Background
With better treatment options, an early diagnosis of axial spondyloarthritis (axSpA) is important. This has been acknowledged in the ASAS criteria for axSpA that encompass both a radiographic (r-axSpA) and a non-radiographic axSpA (nr-axSpA) arm compared to the established modified New York criteria (mNY), which require radiographic sacroiliitis for fulfilment. However, no diagnostic criteria for ankylosing spondylitis (AS) or axSpA exist and studies of agreement between clinical diagnoses for axSpA and concurrent classification criteria are sparse, especially for nr-axSpA.

Objectives
To study the concordance between clinical axSpA diagnoses and classification criteria fulfilment (mNY and ASAS axSpA) in a population-based cohort of established axSpA, and to compare demographic and standard outcome measures between patients classified as radiographic axSpA vs. non-radiographic-axSpA.

Methods
Patients with a clinical diagnosis (ICD-10) of AS (M45.9) or undifferentiated spondyloarthritis (USpA; M46.0, M46.1, M46.8, M46.9), followed at Skåne University Hospital and living in a geographically defined area of southern Sweden were assessed in a cross-sectional study. To exclude patients with only peripheral SpA, patients with USpA had to report back pain ≥3 months before the age of 45, in a telephone screening, to be eligible. To enable classification, included patients underwent clinical assessments by physician and physiotherapist, a classification questionnaire, blood testing (including HLA-B27), and scoring of plain X-rays and MRI scans of the sacroiliac joints by an experienced radiologist.

Results
Out of 233 patients with clinical AS (118) and axial USpA (115) diagnoses, 198 (85%) fulfilled either mNY or ASAS axSpA classification criteria, while 35 (15%) met neither of these criteria.



Among 118 patients with a clinical diagnosis of AS, 103 fulfilled ASAS axSpA criteria and 84 fulfilled mNY criteria (positive predictive value [PPV] of clinical AS diagnosis for fulfilment of the mNY criteria was 71 % and for ASAS r-axSpA 69%). For 115 patients with a clinical USpA diagnosis, 89 fulfilled ASAS axSpA criteria, while a higher number was classified as AS (n=48) than nr-axSpA (n=36; PPV of clinical USpA diagnosis for fulfilling nr-axSpA criteria was 31%) (Figure). Comparing characteristics between patients classified as radiographic axSpA (AS [mNY] and/or ASAS r-axSpA) vs. ASAS nr-axSpA, few differences were observed; the former were older and more often men, had longer disease duration and worse spinal mobility (Table).

Conclusions
The overall concordance between clinical diagnoses and fulfilment of axSpA classification criteria was good, with >4/5 meeting any criteria. For disease subtypes, however, the agreement was substantially weaker, and a large group of patients with USpA in this established cohort fulfilled the mNY criteria for AS. The only clinical variables that differed between radiographic axSpA and non-radiographic axSpA were sex, age, disease duration and spinal mobility. The results indicate that in studies aiming to compare radiographic and non-radiographic axSpA, classification according to defined classification criteria is important.

25 ANTI-CD74 AUTOANTIBODIES IN PATIENTS WITH ANKYLOSING SPONDYLITIS AND ITS RELATION TO SEX AND RADIOGRAPHIC ALTERATIONS

Kontaktinformation: Lan Do, lan.do@umu.se

Lan Do[1], Urban Hellman[1], Xenofon Baraliakos[2], Torsten Witte[3], Helena Forsblad-d'Elia[1]

[1] Department of Public Health and Clinical Medicine, Rheumatology, Umeå University, Umeå
[2] Department of Biochemistry, Ruhr-Universität Bochum, Bochum, Germany
[3] Department of Immunology and Rheumatology, Medical University Hannover, Hannover, Germany

Background
The diagnosis of axial spondyloarthritis (axSpA), including ankylosing spondylitis (AS) and non-radiographic axSpA, is often delayed and prognostic factors are limited. Autoantibodies to CD74 have recently been identified in axSpA (1, 2). CD74 is known as HLA class II γ-chain or invariant chain. Cell surface expressed CD74 is the receptor of the macrophage migration inhibitory factor (MIF). Binding of MIF to CD74 leads to cell proliferation and productions of proinflammatory cytokines. Its role, the prevalence of anti-CD74 in different cohorts of patients with axSpA and its association with disease phenotype needs to be elucidated.

Objectives
The aim of this study was to investigate the levels and prevalence of anti-CD74 IgA antibodies in patients with AS and age and sex-matched controls from the same geographic area in Sweden. We also studied associations between anti-CD74 IgA and radiographic alterations and other disease related factors in AS overall and stratified by sex.

Methods
A cohort of 155 patients with AS from Region Västerbotten (mean age 55.5±11.5 years, 107 (69%) men, 152 (98%) HLAB27) were assessed with spinal radiographs for mSASSS, BASMI, BASFI, ASDAS-CRP and BASDAI. Control samples were obtained from the Medical Biobank at Norrlands University Hospital (n=151, out of which 30/117 (26%) HLAB27). Plasma levels of IgA autoantibodies against CD74 were analyzed using "AESKULISA SpA Detect" ELISA kit (AESKU Diagnostics, Wendelsheim, Germany).

Results
The expression of anti-CD74 IgA was significantly higher in the AS patients (14.9±10.1 U/mL) compared with controls (12.7±7.8 U/mL) (p=0.018). Males with AS had also significantly higher anti-CD74 IgA levels compared with male controls (p=0.023). Using a cutoff of 20 U/mL, anti-CD74 IgA antibodies were found in 36/155 (23%) patients with AS and in 15/151 (10%) controls (p=0.003). Additionally, there was no difference in anti-CD74 IgA level between HLA-B27 positive and HLA-B27 negative controls. Concerning radiographic alterations, anti-CD74 IgA showed a weak positive correlation with mSASSS (0.14, p=0.079). Patients with severe spinal radiographic changes in the spine, defined as ≥ 3 consecutive inter-vertebral bridges in the cervical spine and/or the lumbar spine, had significantly higher levels of anti-CD74 IgA than patients without such severity (p=0.046).
Anti-CD74 IgA was significantly correlated with ESR (p=0.002) and CRP (p=0.007). The expression of anti-CD74 IgA was significantly higher in AS patients on prednisolone and a tendency to such a difference was shown in AS patients on csDMARDs and/or bDMARDs meanwhile use of NSAIDs was not associated with the anti-CD74 IgA levels.

Conclusions
AS patients had significantly higher anti-CD74 IgA levels, overall and in males, compared with controls. AS related radiographic alterations in the spine, laboratory signs of inflammation and treatment indicating more severe AS were associated with higher anti-CD74 IgA levels.

References
1. Baerlecken NT, Nothdorft S, Stummvoll GH, Sieper J, Rudwaleit M, et al. 2014. Ann Rheum Dis 73: 1211-4
2. Baraliakos X, Baerlecken N, Witte T, Heldmann F, Braun J. 2014. Ann Rheum Dis 73: 1079-82

26 PLASMA LEVELS OF ZONULIN, A MODULATOR OF THE PERMEABILITY OF TIGHT JUNCTIONS OF THE INTESTINE, IN PATIENTS WITH ANKYLOSING SPONDYLITIS

Kontaktinformation: Urban Hellman, urban.hellman@umu.se

Lan Do[1], Urban Hellman[1], Helena Forsblad-d'Elia[1]
[1] Department of Public Health and Clinical Medicine, Rheumatology, Umeå universitet, Umeå

Background
Genetic studies of patients with ankylosing spondylitis (AS) have identified gene variants associated with aspects of gut mucosal immunology. This supports the hypothesis that defective gut mucosal immunity plays a role in the pathogenesis of AS.
Intercellular tight junctions regulate paracellular trafficking of macromolecules through the wall of the intestinal tract. Dysregulation of the intestinal permeability may be an important pathogenic component of several chronic inflammatory diseases. The protein zonulin is a physiologic modulator of intercellular tight junctions and induces signaling pathways that triggers tight junction disassembly and increased intestinal permeability.
It has been shown that AS patients with bacterial ileitis have increased bacterial-induced zonulin expression and damaged intestinal mucosal barrier. Elevated zonulin has also been found in diabetes and to be associated with other metabolic factors in non-AS cohorts.

Table 1. Multivariable linear regression analyses in 155 patients with ankylosing spondylitis with log-transformed zonulin as dependent variables and AS related or metabolic related covariates.

AS related model			**Metabolic related model**		
Covariates	**β**	**p-value**	**Covariates**	**β**	**p-value**
Sex	**0.393**	**<0.001**	Sex	**0.467**	**<0.001**
Duration of symptoms, years	0.015	0.843	Age, years	-0.036	0.513
BASFI, score	**0.238**	**0.005**	BMI	**0.541**	**<0.001**
$ASDAS_{ESR}$, score	0.051	0.524	Smoking	0.090	0.062
			Hypertension	0.051	0.354
			Glucose, mmol/L	0.026	0.649
			Triglycerides, mmol/L	**0.180**	**0.003**
			eGFR	-0.063	0.214
Adjusted R^2 0.237			**Adjusted R^2 0.68**		

BASFI: Bath Ankylosing Spondylitis Functional Index, ASDASESR: Ankylosing Spondylitis Disease Activity Score based on Erythrocyte Sedimentation Rate, eGFR: Estimated Glomerular Filtration Rate, BMI: Body Mass Index.

Objectives
The aim of this study was to investigate the plasma levels of zonulin in patients with AS from northern Sweden and to compare the levels with age and sex-matched controls. We also studied associations between zonulin and demographic, metabolic and disease related factors.

Methods
A cohort of 155 patients with AS from Region Västerbotten (Modif NY, mean age 55.5±11.5 years, 107 (69%) men, 152 (98%) HLAB27) were assessed with spinal radiographs for mSASSS, clinical examination, BASMI, BASFI, ASDAS-CRP, ASDAS-ESR, BASDAI and anthropometric data. Fastening blood samples were taken for measurements of blood glucose and lipids. Plasma levels of zonulin were analyzed using human Zonulin ELISA Kit (Elabscience, Wuhan, China) in the patients with AS and 151 age and sex-matched controls obtained from the Medical Biobank at Norrland's University Hospital.
Variables with a p-value ≤ 0.1 in univariate linear regression analysis were, after controlling for multicollinearity, entered into the multivariable models with log-transformed zonulin as the dependent variable.

Results
When comparing AS patients and controls, overall and stratified by sex, we saw no differences in the levels of circulating zonulin. However, when comparing within the AS patients and within the controls, zonulin levels were significantly lower in men with AS versus in women with AS (116.7±177.6 ng/mL vs. 315.3±289.9 ng/mL, p<0.001) and in control men versus control women (92.8±105.9 ng/mL vs. 265.4±241.4 ng/mL, p<0.001). Results from multivariable linear regression analyses, divided into two different models; AS related variables as covariates in one model and metabolic factors as covariates in the other model are presented in the table.

Conclusions
This is the first report exploring plasma levels of zonulin stratified by sex. Interestingly, the levels of plasma zonulin were higher in women compared with men, in both patients and controls. Besides female sex, we found that high BMI, and triglycerides in addition to reduced physical function were related to zonulin in patients with AS.

27 HEPATOCYTE GROWTH FACTOR IS A PREDICTOR OF DEVELOPMENT OF NEW SYNDESMOPHYTES IN MEN WITH ANKYLOSING SPONDYLITIS. A FIVE YEAR PROSPECTIVE STUDY

Kontaktinformation: Anna Deminger, anna.deminger@vgregion.se

Anna Deminger[1, 2], Eva Klingberg[1, 2], Merja Nurkkala[1], Hans Carlsten[1, 2], Lennart TH Jacobsson[1, 2], Helena Forsblad-d'Elia1[3]

[1] Avdelningen för reumatologi och inflammationsforskning, Sahlgrenska Akademin, Göteborgs Universitet, Göteborg
[2] Reumatologkliniken, Sahlgrenska Universitetssjukhuset, Göteborg
[3] Institutionen för folkhälsa och klinisk medicin, Reumatologi, Umeå Universitet, Umeå

Background
Patients with ankylosing spondylitis (AS) have an increased risk of spinal new bone formation characterized by the development of syndesmophytes. Knowledge of predictors for development of syndesmophytes is limited. Hepatocyte growth factor (HGF) has regulatory effects on a variety of cells in many different organs. HGF signaling can affect both osteoclast and osteoblast lineages and has been shown to promote osteogenesis. Cross-sectional association between increased HGF and increased modified Stoke Ankylosing Spinal Score (mSASSS) has previously been shown [1], whereas knowledge of HGF as a predictor for spinal new bone formation is lacking.

Objectives
To study serum HGF as a predictor for development of new syndesmophytes in patients with AS followed for five years.

Methods
Serum levels of HGF was analyzed using ELISA in patients with AS (modified NY-criteria) and in healthy controls (HC) at baseline. Spinal lateral radiographs were obtained at baseline and at the 5-year follow-up and assessed for development of new syndesmophytes using mSASSS. Univariate and multivariable logistic regression analyses were used to assess HGF as a predictor for development of ≥ 1 new syndesmophyte.

Results
Serum HGF and radiographs at baseline and follow-up were available for 163 patients, 88 men and 75 women, baseline mean (SD) age 50 (12) years. AS patients had higher serum HGF than HC (n=80), p=0.050.
In the AS group, 36 patients (22 %) developed ≥ 1 syndesmophyte, 27 men and 9 women. In the total AS group, neither did baseline serum HGF differ between those who developed ≥ 1 new syndesmophyte and those who did not progress, nor did it predict development of ≥ 1 new syndesmophyte in the univariate analysis, p=0.21.
Interestingly, men who developed ≥1 new syndesmophyte had higher median (first, third quartile) serum HGF than the non-progressors (1551 (1449, 1898) vs 1436 (1200, 1569) pg/mL, p=0.003) and increased serum HGF at baseline predicted development of ≥ 1 syndesmophyte (OR per 1 SD HGF 2.39, 95% CI 1.31 to 4.36) in the univariate analysis. Serum HGF did not predict new syndesmophytes in women, p=0.13. Multivariable analysis for men including age, smoking, baseline syndesmophyte and serum HGF showed high HGF (OR per 1SD 1.90, 95% CI 1.01 to 3.59) and ≥1 baseline syndesmophyte (OR 3.48, 95% CI 1.09 to 11.07) to independently predict development of ≥ 1 new syndesmophyte. If baseline CRP was included in the multivariable model, serum HGF and baseline syndesmophytes remained the significant predictors.
Conclusion: High baseline serum HGF was shown to independently predict the development of at least one new syndesmophyte over five years in men with AS.

References
1.Torres L, Klingberg E, Nurkkala M, Carlsten H, Forsblad-d'Elia H. Hepatocyte growth factor is a potential biomarker for osteoproliferation and osteoporosis in ankylosing spondylitis. Osteoporos Int 2018.

28 REDUCED STRAIN AND INCREASED STIFFNESS OF COMMON CAROTID ARTERIES IN PATIENTS WITH ANKYLOSING SPONDYLITIS

Kontaktinformation: Helena Forsblad d'Elia, helena.forsblad.delia@umu.se

Helena Forsblad-d'Elia[1], Lucy Law[1], Karin Bengtsson[2], Stefan Söderberg[3], Per Lindqvist[4]

[1] Department of Public Health and Clinical Medicine/Rheumatology, Umeå University, Umeå
[2] Department of Rheumatology and Inflammation Research, Sahlgrenska Academy at University of Gothenburg, Gothenburg
[3] Department of Public Health and Clinical Medicine/Medicine, Umeå University, Umeå
[4] Department of Surgical and Perioperative Sciences, Umeå University, Umeå

Background
Ankylosing spondylitis (AS) is associated with an increased risk of cardiovascular disease (CVD) which also contributes to the increased mortality observed in AS. It is therefore important to develop non-invasive, accurate methods for early detection of atherosclerotic vascular changes. Studies, in other populations, have demonstrated associations between arterial stiffness and atherosclerotic burden and incident cardiovascular events. The arterial stiffness can be examined by ultrasound providing the β stiffness index that evaluates mechanical deformation properties. Technological advancements in ultrasound have developed a method assessing strain, using speckle tracking technique, which measures deformation mechanics in more dimensions. The speckle tracking method assessing arterial wall motion might permit earlier detection of subclinical CVD.

Objectives
To study, for the first time, bilateral common carotid arterial (CCA) circumferential strain and β stiffness index in patients with AS and 1) compare the results with age and sex-matched controls and 2) explore relationships between circumferential strain and β stiffness index with disease activity, physical function and traditional risk factors for CVD in patients with AS.

Methods
A cohort of 149 patients with AS from Northern Sweden (Modif NY, mean age 55.3±11.2 years, 102(68.5%) men, 146(98%) HLAB27) were assessed with spinal radiographs for mSASSS, clinical examination and BASMI, BASFI, ASDAS-CRP and BASDAI. Forty-six patients with AS (50.4±8.7 years, 31(67%) men) and 46 age- and sex-matched controls (49.8±9.2 years, 31(67%) men) with no known hypertension, diabetes or previous CV events were compared. Bilateral CCA ultrasound was carried out on all patients and controls. The circumferential systolic strain was measured and the β stiffness index was calculated.

Table. Standard multivariable linear regression analysis in 149 patients with AS

Mean CCA circumferential strain, %			Mean β stiffness index, mmHg/mm		
Covariates	**β**	***p*-value**	**Covariates**	**β**	***p*-value**
Age, years	**-0.22**	**0.021**	**Age, years**	**0.29**	**0.008**
Anterior uveitis, Y/N	**-0.17**	**0.021**	Peripheral arthritis, Y/N	0.077	0.35
DMARD, Y/N	**-0.15**	**0.036**	Hypertensive disease, Y/N	0.066	0.43
BASFI, score	0.033	0.69	BASMI, score	0.12	0.32
BASMI, score	-0.008	0.93	Syndesmophyte, Y/N	-0.039	0.69
ESR, mm/h	**-0.30**	**<0.001**	**Pack years, smokers, n**	**0.16**	**0.059**
Cholesterol, mmol/L	-0.021	0.79	Pulse pressure, mmHg	-0.002	0.98
HDL, mmol/L	-0.094	0.22	Heart rate, bpm	0.13	0.12
Systolic blood pressure, mmHg	-0.025	0.81			
Diastolic blood pressure, mmHg	-0.121	0.22			
Heart rate, bpm	-0.16	**0.038**			
Adjusted R^2 0.31			**Adjusted R^2 0.22**		

To analyze factors associated with strain and β stiffness index univariate and standard multivariable linear regression analyses were used. Variables with a univariate p-value ≤ 0.1 were considered for the multivariable models. For dichotomous variables, yes was coded 1 and no was coded 0.

Results

The mean strain was significantly lower in AS patients compared with controls, 7.9±2.6% vs 10.3±1.9%, p<0.001 and the mean β stiffness index was significantly higher in AS compared to controls, 13.1±1.6 mmHg/mm vs 12.3±1.3 mmHg/mm, p=0.018. The results of the regression analyses are shown in the table.

Conclusion

Both circumferential strain and β stiffness index differed significantly between AS patients and controls indicating a worse subclinical arterial status in AS. The CCA strain was associated with several AS related variables while the β stiffness index with age and smoking indicating that the methods complement each other in the assessment of distensability of arteries in patients with AS.

29 CARDIOVASCULAR RISK FACTORS IN GOUT COMPARED TO AS, PSA AND RA – RESULTS FROM A QUESTIONNAIRE STUDY

Kontaktinformation: Mats Dehlin, mats.dehlin@vgregion.se

Anton Landgren[1], Lennart TH Jacobsson[1], Eva Klingberg[1], Ulrika Bergsten[2]

[1] Department of Rheumatology and Inflammation Research, Sahlgrenska Academy, Gothenburg
[2] R&D Department at Region Halland, Halmstad

Background

Increased risk for cardiovascular disease (CVD) is a hallmark for many rheumatic diseases including gout, ankylosing spondylitis (AS), psoriatic arthritis (PsA) and rheumatoid arthritis (RA). This is likely explained by a combination of increased occurrence of CVD risk factors (CVDRF) and chronic inflammation and in gout possibly by increased serum urate levels.

Objectives

To compare the prevalence of CVRFs and CVD in gout, AS, PsA and RA.

Methods

All individuals aged ≥18 years with at least one ICD-10 diagnosis of gout (M10), AS (M459), PsA (M073) and RA (M059/M060) recorded by a physician during a two year period (Jan 2015 through Feb 2017) were identified at 12 primary care centers and three rheumatology units in the Western Sweden Health Care Region. A total of 1589 gout, 1095 AS, 1200 PsA and 1246 RA subjects were sent a questionnaire which included questions on demographics, CVRFs (smoking, alcohol consumption, physical activity (PA)) and comorbidities (diabetes (DM), hypertension (HT), dyslipidemia (DL), acute coronary syndrome (ACS) and stroke). High alcohol intake was defined as >4 std drinks/week. Low PA was defined as ≤3 hours of moderate PA/week. Primary non-responders received a second mailing of the questionnaire. All prevalences were indirectly age standardized (IAS) to the population of Sweden 2017, due to the differences in age distribution between the diseases. Chi square test with significance level .05 was performed. IAS prevalences for BMI, PA, DM and HT for the general population (GP) was retrieved from the National public health survey from 2015 which was sent to more than 100 000 randomly selected citizens in Sweden aged 16-84.

Males	Gout, n= 582, prevalence %	AS, n= 273, prevalence %	PsA, n= 268, prevalence %	RA, n= 315, prevalence %	p value*	GP, n= 23177, prevalence %
BMI ≥25	85.3	51.5	55.0	65.9	< 0.0001	56.2
PA, low	61.9	44.0	54.8	58.0	0.0001	42.5
Alcohol, high	43.5	20.0	28.3	16.5	< 0.0001	N/A
Smoking, ever	48.5	53.4	35.9	46.6	0.0003	N/A
DM	14.2	4.8	8.4	8.7	0.0001	6.0
HT	49.2	23.9	32.9	29.2	< 0.0001	18.7
DL	25.3	9.6	11.2	13.1	< 0.0001	N/A
Stroke	7.7	0.9	4.1	4.9	0.0005	N/A
ACS	7.7	3.1	6.1	6.4	0.6	N/A

Females	Gout, n= 114, prevalence %	AS, n= 215, prevalence %	PsA, n= 305, prevalence %	RA, n= 345, prevalence %	p value*	GP, n= 26714, prevalence %
BMI ≥25	87.3	40.8	60.0	45.9	< 0.0001	43.1
PA, low	74.8	48.3	54.3	52.6	<0.0001	45.5
Alcohol, high	7.0	6.4	14.2	6.9	0.003	N/A
Smoking, ever	56.7	37.8	56.8	38.0	< 0.0001	N/A
DM	14.9	2.3	4.9	4.2	< 0.0001	4.4
HT	56.8	20.3	27.5	24.4	< 0.0001	17.6
DL	26.7	7.4	10.5	9.7	< 0.0001	N/A
Stroke	3.7	0.8	0.6	1.7	0.09	N/A
ACS	3.6	0.0	1.8	2.5	0.2	N/A

Table 1 Age-standardized prevalences of CVD riskfactors and outcomes in males and females, *Chi-square comparing gout, AS, PsA and RA

Results

Response rates ranged from 53.6% (AS) to 59.6% (RA) and after excluding subjects who had not provided complete information on the evaluated variables we included 2437 individuals. The gout and RA patients were older (mean age 71 (SD 12) and 66 (SD 13) years respectively) compared to AS and PsA (mean age 50 (SD 14) and 55 (SD 13) years respectively). When adjusting for these differences by IAS by sex, both prevalent CVD (stroke, ACS) and all traditional risk factors were more common in gout compared to RA, AS or PsA (Table 1), except for alcohol intake in women, where highest exposure was seen in PsA (Table 1). The male AS patients displayed the highest PA level and the lowest prevalence of stroke (table 1). Smoking was least common in male PsA and female AS and RA patients (table 1).

Conclusion

Gout patients display the highest prevalence of CVRFs in both men and women compared to AS, PsA and RA. Thus, addressing CVDRFs is of particular importance in patients with gout.

30 IDENTICAL TWO-YEAR TREATMENT RETENTION OF ORIGINATOR AND BIOSIMILAR INFLIXIMAB. RESULTS OF A NORDIC COLLABORATION INCLUDING 1319 PATIENTS WITH SPONDYLOARTHRITIS

Kontaktinformation: Ulf Lindström, ulf.lindstrom@gu.se

Ulf Lindström[1], Bente Glintborg[2], Daniela Di Giuseppe[3], Johan Askling[3], Dan Nordström[4], Sella Aarrestad Provan[5], Björn Gudbjornsson[6], Merete Hetland[2], Kalle Aaltonen[7], Niels Steen Krogh[2], Arni Jon Geirsson[6], Lennart Jacobsson[1]

[1] Sahlgrenska Academy, University of Gothenburg, Gothenburg
[2] DANBIO, Copenhagen, Denmark
[3] Karolinska Institutet, Stockholm
[4] ROB-FIN, Helsinki University and University Hospital, Helsinki, Finland
[5] Diakonhjemmet Hospital, Olso, Norway
[6] ICEBIO & University of Iceland, Reykjavik, Iceland
[7] Ministry of Social Affairs and Health, Helsinki, Finland

Background
The first infliximab biosimilar (CT-P13) was introduced in Europe in 2014, followed by a rapid, but differential, uptake across the Nordic countries [1]. Pre and post-marketing randomized controlled trials have shown similar efficacy and safety of originator infliximab (INF) versus CT-P13, but a number of observational studies have indicated potential differences in long-term treatment retention. However, no large observational study has hitherto directly compared the treatment retention of INF with CT-P13 in bio-naïve patients with spondyloarthritis (SpA) starting infliximab during the same calendar-time period.

Objectives
To compare one- and two-year treatment retention of INF versus CT-P13 in SpA, when used as a first line biologic, and to explore baseline characteristics in the two cohorts.

Methods
Observational cohort study. Bio-naïve patients with ankylosing spondylitis (AS), non-radiographic axial SpA (nrax-SpA) or undifferentiated SpA (uSpA), starting INF or CT-P13 as their first ever TNFi during the time-period Jan 2014 through Jun 2017 were identified in biological registers in the five Nordic countries. SpA comorbidities were identified through linkage to national registers. Treatment retention of INF versus CT-P13 was assessed through survival probability curves and one- and two-year retention rates.

Figure 1. Treatment retention of infliximab in spondyloarthritis

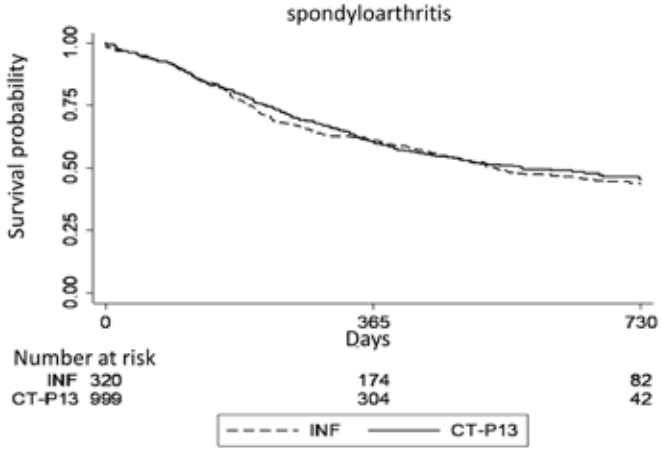


Table 1. Baseline characteristics of infliximab treated SpA patients.

	INF (N=320)	CT-P13 (N=999)
Age at start, years	42 (14)	42 (13)
Disease duration, years	13 (12)	10 (11)
Sex, men , %	57	58
AS, %	57	46
nrax-SpA/uSpA, %	43	54
Psoriasis*, %	6	3
Inflammatory bowel disease*, %	10	11
CRP, mg/L	15 (21)	13 (22)
VAS-pain, mm	62 (23)	59 (24)
ASDAS	3.37 (1.02)	3.35 (0.97)
BASDAI, mm	6.0 (2.0)	5.6 (2.0)
BASFI, mm	4.4 (2.5)	4.8 (2.4)
Concomitant csDMARD, %	44	31

Numbers are means (standard deviations) unless otherwise stated
INF= infliximab originator; CT-P13= infliximab biosimilar.
*comorbidities only available from Sweden, Denmark and Finland.
csDMARD = conventional synthetic Disease Modifying anti-Rheumatic Drugs.

Results
In total 1319 bio-naïve patients with SpA started infliximab during the time-period, 24% started INF and 76% CT-P13. Baseline characteristics of patients in the two treatment groups were comparable (Table 1). The survival probability curves were identical for INF compared to CT-P13 (Figure 1), and the proportion of patients remaining on treatment after one and two years were similar: one year INF 62% (95%CI 57-68%), CT-P13 63% (95%CI 60-66%); two years: INF 44% (95%CI: 38-50%) and CT-P13 46% (95%CI: 42-51%). Further confounder-adjusted analyses, are planned and will be presented at the conference.

Conclusions
We found remarkably similar treatment retentions for the infliximab originator and biosimilar when used as the first line biologic in 1319 patients with SpA. The baseline characteristics of the patients starting the originator and the biosimilar suggest that the cohorts are comparable, and the results thus supports the equivalence of the treatments.

References
1. Glintborg et al. Biological treatment in ankylosing spondylitis in the Nordic countries during 2010-2016: a collaboration between five biological registries. Scand J Rheumatol. 2018;47:465-74.

31 SIMILAR ONE-YEAR TREATMENT RETENTION OF ORIGINATOR AND BIOSIMILAR ETANERCEPT. RESULTS OF A NORDIC COLLABORATION INCLUDING 1015 PATIENTS WITH SPONDYLOARTHRITIS

Kontaktinformation: Ulf Lindström, ulf.lindstrom@gu.se

Bente Glintborg[1], Ulf Lindström[2], Daniela Di Giuseppe[3], Johan Askling3, Dan Nordström[4], Sella Aarrestad Provan[5], Björn Gudbjornsson[6], Merete Hetland[1], Kalle Aaltonen[7], Niels Steen Krogh[1], Arni Jon Geirsson[6], Lennart Jacobsson[2]

[1] DANBIO, Copenhagen, Denmark
[2] Sahlgrenska Academy, University of Gothenburg, Gothenburg
[3] Karolinska Institutet, Stockholm
[4] ROB-FIN, Helsinki University and University Hospital, Helsinki, Finland
[5] Diakonhjemmet Hospital, Olso, Norway
[6] ICEBIO & University of Iceland, Reykjavik, Iceland
[7] Ministry of Social Affairs and Health, Helsinki, Finland

Background
The marketing approval of the etanercept biosimilar SB4 was based on phase III studies on patients with rheumatoid arthritis, but extended to all etanercept indications. Currently, no randomized controlled trials have compared etanercept originator (ETN) with SB4 in patients with spondyloarthritis (SpA). However, the uptake of etanercept biosimilars in the treatment of SpA has been exponential in the Nordic countries, with marked differences across the countries [1].

Objectives
To compare the one-year treatment retention in bio-naïve patients with SpA treated with ETN versus SB4. Furthermore, to explore baseline characteristics in the two patient groups.

Methods
Observational cohort study. Patients with SpA (ankylosing spondylitis (AS), non-radiographic axial SpA (nrax-SpA) or uSpA)), starting etanercept as their first ever TNFi Jan 2014 through Jun 2017 were identified in biologics registers in the five Nordic countries. Baseline characteristics were retrieved from each biological register and comorbidity data through linkage to national registers. The country-specific data were then pooled for

Figure 1. Treatment retention of etanercept in spondyloarthritis

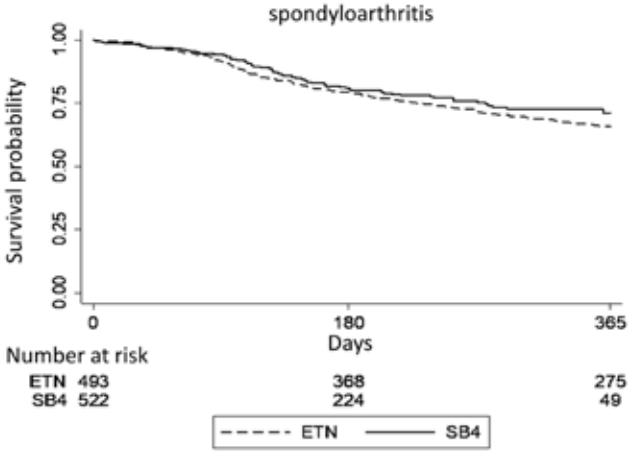


Table 1. Baseline characteristics of etanercept treated SpA patients

	ETN (N=493)	SB4 (N=522)
Age, years	41 (14)	41 (14)
Disease duration, years	12 (12)	11 (12)
Sex, men, %	48	50
AS, %	41	38
nrax-SpA or uSpA, %	59	62
Psoriasis*, %	7	5
Inflammatory bowel disease*, %	2	2
CRP, mg/L	11 (18)	10 (15)
VAS-pain, mm	59 (24)	59 (22)
ASDAS	3.05 (0.90)	2.98 (0.94)
BASDAI, mm	5.4(2.0)	5. 4 (1.9)
BASFI	4.1 (2.4)	4.1 (2.5)
Concomitant csDMARD, %	29	22

Numbers are means (standard deviations) unless otherwise stated
ETN=etanercept originator; SB4= etanercept biosimilar.
*) comorbidities only available from Sweden, Denmark and Finland.
csDMARD = conventional synthetic Disease Modifying anti-Rheumatic Drugs.

further analysis. Comparisons of treatment retention between ETN and SB4 were assessed through survival probability curves and one-year retention rates.

Results

In total, 1015 patients were included, whereof 49% started ETN and 51% SB4. Baseline characteristics were similar in the two patient groups (Table 1).

One-year survival probability curves were similar for ETN compared to SB4 (Figure 1), and the proportions of patients remaining on drug at one year were comparable: ETN 66% (95%CI: 61-70%) and SB4 73% (95%CI: 68-78%). Further confounder-adjusted analyses are planned and will be presented at the conference.

Conclusions

In this observational study of 1015 patients with SpA from five Nordic countries, biologics-naïve patients starting treatment with originator versus biosimilar etanercept had similar baseline characteristics and similar one-year treatment retention rates, suggesting similar effectiveness and tolerability of the two drugs.

References

1. Glintborg et al. Biological treatment in ankylosing spondylitis in the Nordic countries during 2010-2016: a collaboration between five biological registries. Scand J Rheumatol. 2018;47:465-74.

32 INCIDENCE OF EXTRA-ARTICULAR MANIFESTATIONS IN ANKYLOSING SPONDYLITIS, PSORIATIC ARTHRITIS AND UNDIFFERENTIATED SPONDYLOARTHRITIS – RESULTS FROM A NATIONAL REGISTER-BASED COHORT STUDY

Kontaktinformation: Karin Bengtsson, karin.si.bengtsson@vgregion.se

Karin Bengtsson[1], Helena Forsblad-d'Elia[1,2], Anna Deminger[1], Eva Klingberg[1], Mats Dehlin[1], Sofia Exarchou[3], Ulf Lindström[1], Johan Askling[4], Lennart TH Jacobsson[1]

[1] Sahlgrenska Academy, University of Gothenburg, Göteborg
[2] Umeå University, Umeå
[3] Lund University, Malmö
[4] Karolinska Institutet, Stockholm

Background

Spondyloarthritis (SpA), including ankylosing spondylitis (AS), psoriatic arthritis (PsA) and undifferentiated SpA (uSpA), are all to varying degrees associated with extra-articular manifestations (EAMs).

Objectives

To estimate incidence rates (IRs) for EAMs (anterior uveitis, inflammatory bowel disease (IBD) and psoriasis) in patients with AS, PsA and uSpA, respectively.

Material and methods

In this nationwide cohort study, three separate cohorts of patients aged 18 to 69 years with AS (n=8517, 68% men, mean age 47±13 years), PsA (n=22667, 46% men, mean age 49±12 years) and uSpA (n=10245, 44% men, mean age 42±13 years) were identified 2001-2015 in the Swedish National Patient Register (NPR). The follow-up began 1 January 2006, or six months after the date of the first SpA diagnosis thereafter in previously undiagnosed cases, and ended at the first date of EAM, death, emigration or 31 December 2016, respectively. Both the SpA diagnoses and EAMs were identified according to specified ICD codes. Number of outcomes, person-years at risk and IRs with 95 % CI were calculated for each EAM and stratified by sex and age-intervals. Patients with a prior EAM in NPR before start of follow-up were excluded from that specific analysis.

Results

The IRs for each EAM are presented in Table 1. The overall highest IRs were noted for anterior uveitis in patients with AS (14.4 (13.2-15.5) per 1000 person-years at risk). Patients with PsA had considerably lower IRs for anterior uveitis (1.7 (1.5-1.9) per 1000 person-years at risk) and slightly lower IRs for IBD than patients with AS and uSpA. The IRs for anterior uveitis were significantly higher in men than in women in both AS and uSpA.

Conclusions

IRs for EAMs clearly differed between the SpA subtypes, and especially for anterior uveitis where the IRs were by far highest in patients with AS and uSpA compared to patients with PsA.

Table 1.

	AS		PsA		uSpA	
	Prior EAM n (%)	IRs (95% CI)	Prior EAM n (%)	IRs (95% CI)	Prior EAM n (%)	IRs (95% CI)
ANTERIOR UVEITIS						
All	**1852 (22)**	**14.4 (13.2-15.5)**	**356 (1.6)**	**1.7 (1.5-1.9)**	**1498 (15)**	**7.7 (6.9-8.5)**
Men	1315 (23)	15.8 (14.3-17.3)	177 (1.7)	1.7 (1.4-2.0)	771 (17)	10.1 (8.8-11.5)
Women	537 (20)	11.2 (9.4-13.1)	179 (1.5)	1.8 (1.5-2.1)	727 (13)	6.0 (5.1-6.9)
IBD						
All	**615 (7.2)**	**2.8 (2.4-3.3)**	**504 (2.2)**	**1.1 (0.9-1.3)**	**632 (6.2)**	**2.5 (2.1-2.9)**
Men	403 (7.0)	2.6 (2.0-3.1)	192 (1.8)	1.0 (0.8-1.2)	268 (5.9)	2.6 (2.0-3.2)
Women	212 (7.7)	3.4 (2.5-4.3)	312 (2.6)	1.2 (1.0-1.4)	364 (6.4)	2.4 (1.8-2.9)
PSORIASIS						
All	**264 (3.1)**	**5.6 (5.0-6.3)**	*NA*	*NA*	**405 (4.0)**	**7.7 (7.0-8.4)**
Men	171 (3.0)	5.4 (4.7-6.2)	*NA*	*NA*	199 (4.4)	6.9 (5.9-8.0)
Women	93 (3.4)	6.1 (4.9-7.3)	*NA*	*NA*	206 (3.6)	8.3 (7.3-9.3)

The IRs are presented as number of events per 1000 person-years at risk. NA, not applicable.

33 ELEKTRONISKA UNIVERSALVERKTYGET EASY ANGLE KAN ERSÄTTA MYRINMÄTARE VID MÄTNING AV CERVIKAL RÖRLIGHET HOS PATIENTER MED SPA

Kontaktinformation: Julia Karlström, julia.kstrom@gmail.com

Julia Karlström[1]
[1]Centrum för reumatologi, Akademiskt specialistcentrum

Bakgrund och syfte
Mätning av rörlighet är en elementär del i fysioterapeutiska bedömningar. Spondylartrit (SpA) är en kronisk inflammatorisk sjukdom som framför allt drabbar ryggraden. Mätning av cervikal rörlighet är en del i den kliniska undersökningen och utförs idag med Myrinmätare. Easy Angle är ett nylanserat digitalt universellt mätinstrument. Den behöver dock utvärderas för att kunna användas i klinik.

Syftet var att undersöka mätegenskaper för Easy Angle avseende samtidig validitet samt att undersöka inter- och intrabedömarreliabilitet för Easy Angle och Myrinmätare hos personer med SpA.

Metod
Den samtidiga validiteten utvärderades genom att jämföra Easy Angle mot Myrinmätaren. Intra- och interbedömarreliabiliteten utvärderades genom test-retest-förfarande mellan samma mätare och två olika mätare för båda mätinstrumenten. Nitton personer med diagnosen SpA genomförde studien. Mätningarna utfördes från höger till vänster sida i given ordning: rotation, lateralflexion, flexion, extension. Den samtidiga validiteten beräknades med Spearmans korrelation (rs) och intra- och interbedömarreliabiliteten beräknades med Interclass correlation (ICC).

Resultat
Resultaten från denna studie påvisar en hög till mycket hög samtidig validitet (rs 0,86–0,95) samt nästintill perfekt intrabedömarreliabilitet för både Easy Angle (ICC 0,90–98) och Myrin (ICC 0,95–0,98) samt mycket hög interbedömarreliabilitet för Easy Angle (ICC 0,95–0,98) och Myrin (ICC 0,92–0,98).

Konklusion
Det förelåg en hög samtidig validitet hos EasyAngle när den jämfördes mot Myrinmätare och en näst intill perfekt intra- och interbedömarreliabilitet för både EasyAngle och Myrinmätaren. Slutsatsen är att Myrinmätare och Easy Angle är utbytbara. Fördelarna med Easy Angle är att fler leder kan mätas med samma instrument, att den inte är känslig för lägesändringar och mer hygienisk.

34 THE COMBINED EFFECTS OF LIFESTYLE HABITS ON HEALTH-RELATED QUALITY OF LIFE, PHYSICAL AND MENTAL FUNCTIONS IN PATIENTS WITH SPONDYLOARTHRITIS

Kontaktinformation: Elisabeth Mogard, elisabeth.mogard@med.lu.se

Elisabeth Mogard1, Ann Bremander2, Emma Haglund3
1Reumatologen, Skånes universitetssjukhus, Lund
2Danish Hospital for Rheumatic Diseases, University Hospital of Southern Denmark, Sönderborg, Denmark
3Akademin för ekonomi, teknik och naturvetenskap, Rydberglaboratoriet för tillämpad naturvetenskap, Högskolan i Halmstad, Halmstad

Background
Earlier studies have found strong correlations between worse health and an unhealthy lifestyle, such as not meeting recommendations of moderate-to-vigorous physical activity, being overweight or obese and the use of tobacco in patients with spondyloarthritis (SpA). The impact of more than one unhealthy lifestyle habit (LsH) is however scarcely described.

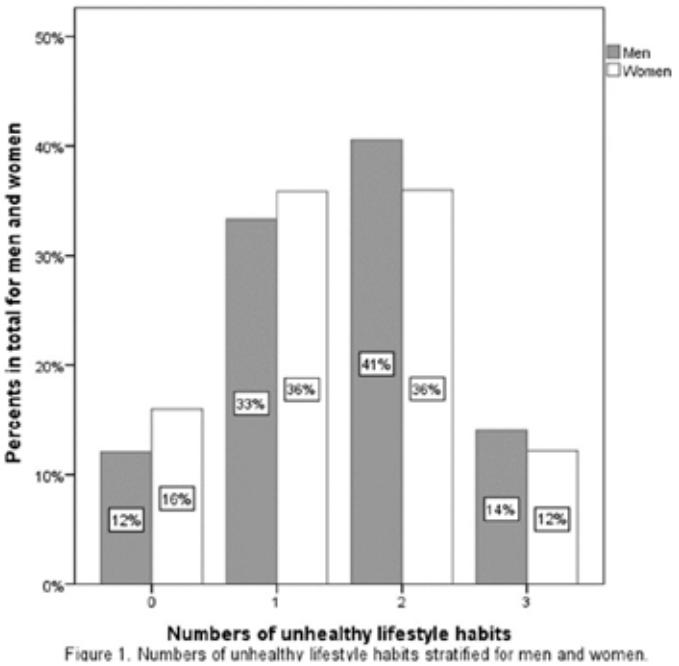


Figure 1. Numbers of unhealthy lifestyle habits stratified for men and women.

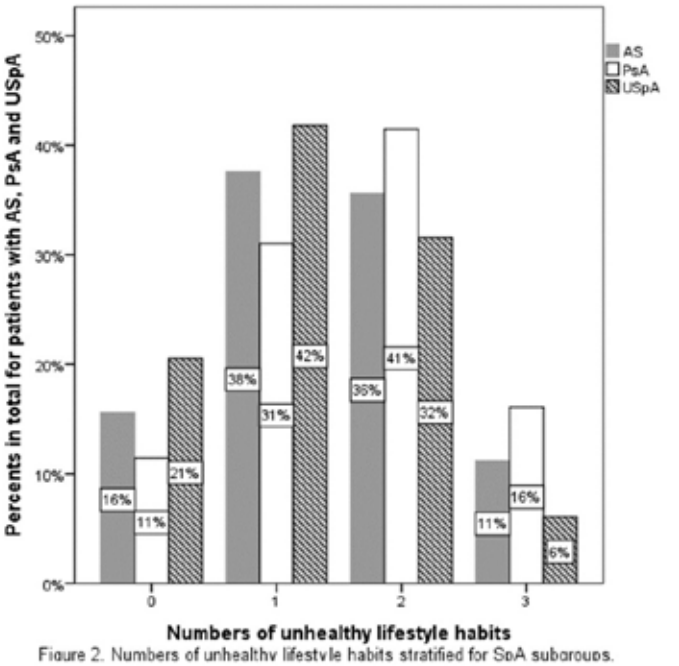


Figure 2. Numbers of unhealthy lifestyle habits stratified for SpA subgroups.

Objectives
To study the combined effects of unhealthy LsHs on health-related quality of life (HRQoL) and physical and mental functions in patients with SpA. Differences between SpA subgroups and gender were also studied.

Methods
Postal questionnaires were in 2009 and 2011 sent to all patients diagnosed with SpA and registered in the Skåne Healthcare Register. This study included patients who at both time points responded to the survey, were ≥20 years, and had ankylosing spondylitits (AS), psoriatic arthritis (PsA) or undifferentiated spondyloarthritis (USpA). Cross-sectional data from the 2011 questionnaire were available for 1601 patients (AS n=455, PsA

n=883, USpA n=263), with a mean age of 58 (13) years (52% women). Self-reported levels of weekly physical activity at moderate or vigorous intensity, (MVPA), use of tobacco (cigarettes and/or snuff) and BMI (overweight or obese) were dichotomized as "healthy" or "unhealthy". The number of unhealthy LsH were then summarized and stratified into four groups (scoring 0-3, 0=no unhealthy LsH). HRQoL was assessed with EQ-5D (0-1, worst-best), and physical function with BASFI. Disease activity (BASDAI), pain, fatigue (0-10, best-worst), anxiety, and depression (HADa/d) (0-21, no distress-maximum distress) were also measured.
Statistical analyses were performed with Chi Square test and ANOVA.

Results
Fourteen percent (n=226) reported none of the studied unhealthy LsH, while 35% (n=555) reported one, 38% (n=611) two, and 13% (n=209) three unhealthy LsH. Reports of one and more unhealthy LsH had increasing negative impact on HRQoL (from mean 0.74 (SD 0.19) to 0.57 (0.30)), disease activity (from 3.2 (2.1) to 4.5 (2.3)), physical function (2.3 (2.1) to 4.4 (2.6)), VAS-pain (3.4 (2.3) to 4.8 (2.5)), VAS-fatigue (4.2 (2.7) to 5.5 (2.7)), anxiety (4.8 (4.2) to 5.6 (4.4)) and depression (3.3 (3.3) to 4.8 (3.8)) in patients with SpA (p=0.019-<0.001). Patients with PsA (p=<0.001) and men (p=0.040) reported more often ≥2 unhealthy LsHs, while patients with USpA were least likely to have ≥2 unhealthy LsHs (Figure 1,2). The negative impact on HRQoL, physical and mental functions still remained significant when stratified into different SpA subgroups and gender, except for anxiety in women, and for patients with PsA or USpA.

Conclusion
Our findings support that the combined effect of unhealthy lifestyle habits have negative impact on many aspects of health. There is a need for interventions aiming at screening for not only one but several unhealthy lifestyle habits combined, and to offer coaching to increase behavioral change and promote better health.

35 SUSTAINED LOW DISEASE ACTIVITY AFTER WEIGHT LOSS TREATMENT IN PATIENTS WITH PSORIATIC ARTHRITIS AND OBESITY; A 12-MONTHS FOLLOW-UP

Kontaktinformation: Eva Klingberg, eva.klingberg@vgregion.se

Eva Klingberg[1], Annelie Bilberg[2], Björn Eliasson[3], Ingrid Larsson[4]

[1] Reumatologkliniken Sahlgrenska, Avdelningen för Reumatologi och Inflammationsforskning, Sahlgrenska Akademin, Göteborgs Universitet, Göteborg
[2] Sahlgrenska Universitetssjukhuset, Institute of Neuroscience and Physiology, Section of Health and Rehabilitation, Physiotherapy, Sahlgrenska Academy at the University of Gothenburg, Göteborg
[3] Sahlgrenska Universitetssjukhuset, Department of Medicine, Institute of Medicine, Sahlgrenska University Hospital, University of Gothenburg, Göteborg
[4] Sahlgrenska Universitetssjukhuset, Department of Gastroenterology and Hepatology, Sahlgrenska University Hospital, Gothenburg, Institute of Medicine, Sahlgrenska Academy at University of Gothenburg, Göteborg

Background
Obesity is over-represented in patients with psoriatic arthritis (PsA) and associated with increased disease activity. We have previously shown in 41 patients with PsA (Caspar criteria) and obesity (body mass index BMI ≥33 kg/m2) that weight loss treatment with Very Low Energy Liquid Diet (VLED), 640 kcal/day during 12-16 weeks, followed by a structured reintroduction of an energy restricted diet resulted in a median weight loss of 18.6% and concomitantly a significant improvement of the disease activity in joints, entheses and skin. At 6-months follow-up Psoriatic Arthritis Response Criteria (PsARC) was reached by 46.3% and American College of Rheumatology (ACR) 20, 50, 70 criteria for treatment response by 51.2%, 34.1% and 7.3% of the patients.

N=39	Baseline Median (IQR)	12-months Median (IQR)	p-value
Weight, kg	106 (93.5–112.5)	87.5 (80.6–95.5)	<0.001
Body Mass Index kg/m^2	35.2 (33.9–37.9)	30.5 (28.1–32.9)	<0.001
Tender joints 68, count	4 (1–14)	3 (0-6)	0.001
Swollen joints 66, count	0 (0–1)	0 (0–0)	0.015
Leeds enthesitis index	1 (0–4)	0 (0–2)	<0.001
Psoriasis Body Surface Area, %	0.75 (0–2)	0.25 (0–1)	0.018
CRP, mg/L	5 (3–9)	2 (1–5)	0.009
VAS Pain, mm	30 (17–62)	29 (10–55)	0.251
VAS Global health, mm	34 (18–58)	23 (9.5–38)	0.009
VAS Fatigue, mm	57 (21–67)	32.5 (16–62)	0.007
HAQ, score	0.63 (0.13–1.00)	0.25 (0–0.63)	0.002
DAS-28CRP, score	2.9 (2.2–3.5)	2.2 (1.7–3.0)	<0.001
DAPSA, score	15.3 (6.5–28.2)	10.2 (4.2–16.6)	0.001

Objectives
To study the effects of the weight loss treatment on disease activity in longer term (12 months) in patients with PsA and obesity, when the patients are on a weight loss maintenance diet.

Methods
The patients were assessed with 66/68 joints count, Leeds enthesitis index, body surface area (BSA), questionnaires, CRP and BMI at the 12-months follow-up.

Results
Totally 39 PsA patients, median age 56 (IQR 49-63) years, 64% women were examined at the 12-month follow-up. The median weight reduction since baseline was 16.1 kg (IQR 10.5–22.8) or 16.0 % (10.5–22.4). A majority of the disease activity parameters remained significantly improved (Table). At the 12-months follow-up PsARC was still fulfilled by 35.9 % (n=14) and ACR 20, 50, 70 response criteria by 53.8% (n=21), 35.9% (n=14) and 15.5% (n=6) respectively.

Conclusions
Weight loss treatment with VLED in patients with PsA and obesity was associated with sustained weight reduction and lowered disease activity at 12-months follow-up.

36 MULTICENTRE, RANDOMISED, OPEN-LABEL, ASSESSOR-BLINDED, PARALLEL-GROUP HEAD-TO-HEAD COMPARISON OF THE EFFICACY AND SAFETY OF IXEKIZUMAB VERSUS ADALIMUMAB IN PATIENTS WITH PSORIATIC ARTHRITIS NAIVE TO BIOLOGIC DISEASE-MODIFYING ANTI-RHEUMATIC DRUGS: 24-WEEK RESULTS

Kontaktinformation: Esbjörn Larsson, Larsson_esbjoern@lilly.com

Philip J. Mease[1], Josef S. Smolen[2], Peter Nash[3], Soyi Liu Leage[4], Lingnan Li[4], Hasan Tahir[5], Melinda Gooderham[6], Eswar Krishnan[4], Paul Emery[7], Sreekumar Pillai[4], Philip Helliwell[7], Esbjörn Larsson[8] (nonauthor presenter)

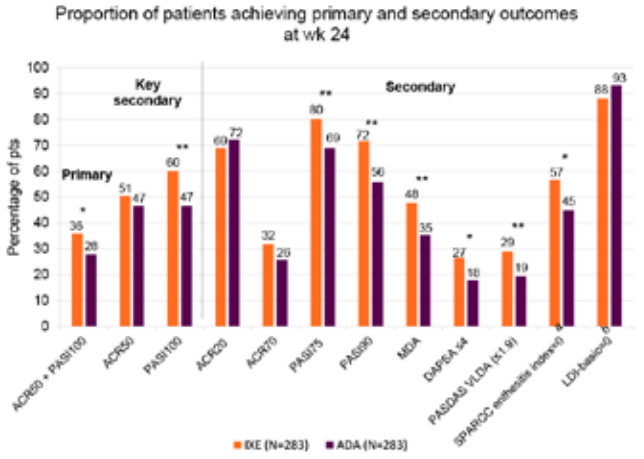
[1] Swedish Medical Center/Providence St. Joseph Health & University of Washington, Seattle, USA
[2] Medical University of Vienna, Vienna, Austria
[3] University of Queensland, Brisbane, Australia
[4] Eli Lilly and Company, Indianapolis, USA
[5] Barts Health, London, UK
[6] Skin Centre for Dermatology, Peterborough, Ontario, Canada
[7] Leeds NIHR BRC LTHT & LIRRM University of Leeds, Leeds, UK
[8] Eli Lilly Sweden AB, Solna

Background
There have been few head-to-head clinical trials comparing different biologic disease-modifying anti-rheumatic drugs (bDMARDs) in patients (pts) with psoriatic arthritis (PsA).

Table 1. Patient baseline demographics/characteristics

	IXE (N=283)	ADA (N=283)
Age, years	47.5 (12.0)	48.3 (12.3)
Male, n (%)	162 (57)	150 (53)
PsA duration since diagnosis, years	6.6 (7.4)	5.9 (6.4)
Concomitant csDMARD use, n (%)	193 (68)	199 (70)
TJC	19.1 (12.7)	21.3 (15.4)
SJC	10.1 (7.5)	10.7 (8.1)
PASI	7.9 (8.7)	7.7 (7.3)
Data are mean (SD), unless stated otherwise		

Figure



Pts were stratified by conventional synthetic DMARD use and presence of moderate to severe psoriasis. *There were 189 IXE- and 171 ADA-treated pts with SPARCC enthesitis index scores >0 at baseline; these patients were evaluated at wk 24. †There were 42 IXE- and 58 ADA-treated pts with LDI scores >0 at baseline; these patients were evaluated at wk 24. ADA, adalimumab 80 mg wk 0 then 40 mg every 2 wk from wk 1 for pts with moderate to severe psoriasis or 40 mg wk 0 then 40 mg every 2 wk for pts without moderate to severe psoriasis; IXE, ixekizumab 160 mg wk 0, then 80 mg every 2 wk to wk 12 and every 4 wk thereafter for pts with moderate to severe psoriasis or 160 mg wk 0, then 80 mg every 4 wk for pts without moderate to severe psoriasis; ACR, American College of Rheumatology criteria; PASI, Psoriasis Area Severity Index score; MDA, minimal disease activity – PsA; DAPSA, Disease Activity for Psoriatic Arthritis; PASDAS VLDA, Psoriatic Arthritis Disease Activity Score very low disease activity; SPARCC, Spondyloarthritis Research Consortium of Canada; LDI, Leeds Dactylitis Instrument.*p < .05, **p < .01 IXE vs ADA

Table 2. Patient reported outcomes

	IXE (N=283)		ADA (N=283)	
	Baseline	LS mean change at wk 24	Baseline	LS mean change at wk 24
HAQ-DI	1.20	-.63	1.27	-.56
SF-36 PCS	36.80	9.96	36.12	8.82
SF-36 MCS	45.40	4.47	44.85	3.93
Dermatology Life Quality Index	9.77	-7.81*	9.82	-6.48
Fatigue Severity Numeric Rating Scale	5.87	-2.66	6.46	-2.53
LS, least square; *p<.001 vs ADA				

Objectives

To report 24-week (wk) results of a study directly comparing efficacy and safety of ixekizumab (IXE), an IL-17A inhibitor, and adalimumab (ADA), a TNF inhibitor, in bDMARD-naive pts with PsA.

Methods

The study (NCT03151551; SPIRIT-H2H) included pts with active PsA (≥3 TJC + ≥3SJC) and plaque psoriasis (BSA ≥3%) who were bDMARD naive and inadequate responders to csDMARD therapy. Patients were randomised (1:1) to IXE or ADA for 52 wks (on-label dosing based on presence/absence of moderate to severe psoriasis). The primary objective was superiority of IXE vs ADA measured by the proportion of pts achieving both ACR50 and PASI100 responses at wk 24. Key secondary objectives versus ADA at wk 24 were (1) non-inferiority of IXE for ACR50 (noninferiority margin -12%) and (2) superiority of IXE for PASI100. Additional PsA, skin, composite treat-to-target (T2T: MDA, DAPSA ≤4), PASDAS remission and patient-reported outcomes, and safety were assessed. Nine pts had PASI=0 and BSA≥3% (a medical inconsistency) at baseline; these pts were considered PASI100 responders if PASI=0 and BSA=0 at wk 24. Categorical variables were evaluated using logistic regression analyses with NRI in the ITT population. Continuous variables were analysed using mixed models for repeated measure analysis.

Results

566 pts were randomised (283 to IXE and 283 to ADA). Baseline demographics and disease characteristics were generally well balanced between groups (Table 1). All primary and key secondary efficacy endpoints at wk 24 were met (Figure). The proportion of pts achieving both ACR50 and PASI100 was significantly greater for IXE than ADA (36% vs 28%; p<.05). IXE was non-inferior to ADA for ACR50 response and superior for PASI100 response (Figure). While improvements from baseline were achieved with both treatments, significantly better results were seen with IXE vs ADA for skin and composite T2T outcomes, enthesitis resolution (Figure), and skin-related quality of life (Table 2). No unexpected safety signals were observed.

Conclusion

In bDMARD naive pts with active PsA and skin disease, IXE showed superior efficacy to ADA based on simultaneous achievement of ACR50 and PASI100 responses at wk 24. Greater improvements with IXE vs ADA were also attained in individual PsA domains and composite T2T outcomes.

37 DUAL ENERGY CT FINDINGS IN GOUT WITH RAPID KILOVOLTAGE-SWITCHING SOURCE WITH GEMSTONE SPECTRAL IMAGING

Kontaktinformation: Mats Dehlin, mats.dehlin@vgregion.se

Elin Svensson[1], Ylva Aurell[1], Lennart Jacobsson[2], Anton Landgren[2], Valgerdur Sigurdardottir[2], Mats Dehlin[2]

[1] Dept of Radiology at Institute of Clinical Sciences, Sahlgrenska Academy, Gothenburg
[2] Dept of Rheumatology and Inflammation Research, Sahlgrenska Academy, Gothenburg

Background

The gold standard for diagnosis of gout is the demonstration of monosodium urate (MSU) crystals in the synovial fluid or in tophi. However, in clinical practice joint aspiration is seldom performed and the majority of patients do not have visible tophi. Dual energy CT (DECT) has been shown capable of detecting MSU crystals with high precision in many studies but the vast majority of these studies were performed using CT scanners with two X-ray tubes (dual source) while the performance of other technical CT solutions are much less investigated.

Objectives

In the present study we wanted to investigate the performance of DECT with rapid kilovoltage-switching source with Gemstone Spectral Imaging (GSI) to identify MSU crystals and validate these results against severity of gout disease.

Methods

Patients with incident or prevalent gout who had been examined with DECT GSI scanning of the feet at Sahlgrenska University Hospital, Sweden between 2015 and 2018 were identified.

	Total, n=55
Age, mean years(SD)	58 (15)
Men, n(%)	43 (78)
Disease duration, mean years (SD)	7 (7)
Tophus, n(%)	7(13)
Erosive disease, n(%)	36 (65)
ULT at deCT, n (%)	22 (40%)
Urate* with ULT, µmol/L, mean (SD), n=22	405 (114)
Urate*) without ULT, µmol/L, mean (SD), n=33	491 (137)
All joints and tendons, score (SD)	14.0 (5.5)
MTP1, n positive (%), score (SD)	55 (100) 4.0 (1.5)
MTP 2-5, n positive (%), score (SD)	55 (100) 3.9 (1.7)
Ankle/midfoot, n positive (%), score (SD)	53 (96) 3.6 (1.8)
Tendons, n positive (%), score (SD)	41 (75) 2.5 (2.3)
Nailartefact, n positive (%)	40 (73)
Skinartefact, n positive (%)	17 (31)
Beam hardening, n positive (%)	1 (1.8)
Noise, n positive (%)	0

*Table 1, gout disease characteristics, urate deposit scores and presence of artefacts, * at time of DECT examination*

Their medical records were examined for gout disease characteristics (onset of disease, presence of tophi, erosive disease), comorbidities, current medication, body mass index (BMI), serum urate, and renal function. Their DECT GSI images were examined by two experienced radiologists in two consensus readings. Urate deposits in MTP1, MTP 2-5, ankle/midfoot joints and tendons were scored semiquantatively in both feet in the following manner: 0=no deposit, 1=dots, 2=single deposit and 3=more than 1 deposit, thus generating a maximum total score of 24 for both feet and a maximum score of6 per location) Presence of artefacts in nail and skin as well as beam hardening and noise were also identified.

Results

We identified a total of 55 patients, mean age 58 years (SD=15), with a clinical diagnosis of incident or prevalent gout who all fulfilled the 2015 ACR/EULAR classification criteria for gout. Mean disease duration was 7 years (SD=7). A minority of patients (40%) were on urate lowering treatment (ULT) at time of DECT (table1). The majority of patients had increased urate (>360 µmol/L), irrespective of ULT (table 1). Urate deposits were found in the feet of all patients, most commonly seen in the MTP-joints but also present in ankle/midfoot joints and tendons (table 1). The total urate deposit score was significantly higher in the presence of clinically identified tophi (Wilcoxon Mann-Whitney, p=0.0005) and correlated strongly to disease duration (Spearman correlation coefficient 0.64, p<.0001) while no association or correlation was seen to age, sex, erosive disease, urate levels, BMI, diuretic or ULT use or renal function. The majority of patients displayed nail artefacts while skin artefacts only were seen in 31% (table 1). Beam hardening was only found in one patient and noise was not seen at all (table 1).

Conclusions

The DECT GSI technique performs well in detection of urate deposits and these correlate to clinical gout characteristics in the same manner as previously shown with DECT dual source technique.

38 HOW DO GOUT-RELATED COMORBIDITIES AND LIFESTYLE FACTORS CLUSTER IN A LARGE HEALTH SURVEY OF THE GENERAL POPULATION? – RESULTS FROM THE MALMÖ PREVENTIVE PROJECT COHORT IN SOUTHERN SWEDEN

Kontaktinformation: Mats Dehlin, mats.dehlin@vgregion.se

Tahzeeb Fatima1, Peter M. Nilsson2, Carl Turesson3, Mats Dehlin1, Nicola Dalbeth4, Lennart T.H. Jacobsson1, Meliha C. Kapetanovic5
1Department of Rheumatology and Inflammation Research, Sahlgrenska Academy, Gothenburg
2Department of Clinical Sciences, Lund University, Malmö
3Section of Rheumatology, Skåne University Hospital, Malmö
4Department of Medicine, University of Auckland, Auckland, New Zealand
5Department of Clinical Sciences Lund, Section of Rheumatology, Skåne University Hospital, Lund

Background

Several factors (comorbidities and lifestyle) have been shown to be associated or predict hyperuricemia or gout. Since these factors often are closely associated with each other, they may represent a few pathophysiological pathways rather than being individually important predictors. Identifying clusters of such factors may thus lead to a better understanding of the pathways involved in increased risk of gout. Two studies have previously indicated four to five phenotype clusters in prevalent cohorts of gout patients of European ancestry1,2. However, identification of clusters of gout-associated factors in the general population is lacking.

Objectives

To identify clusters of gout-related baseline comorbidities and lifestyle factors among participants in a population-based health survey.

Methods

The Malmö Preventive Project is a screening program for cardiovascular risk factors, alcohol abuse and breast cancer in Malmö, Sweden. Overall, 33,346 individuals (67% male, mean age 45.7 years at inclusion) participated. The study population was screened between 1974 and 1992. A subset of 22,057 individuals (screening period: 1975-1992) was eligible for the cluster analysis. Agglomerative hierarchical cluster analysis was performed to group similar variables and subgroup individuals with similar characteristics, using principal component and Ward's minimum variance methods in Rv3.5.2, respectively. Variables selected to cluster were obesity (BMI>30 kg/m2), renal dysfunction (eGFR<60 mL/min/1.73m2), diabetes mellitus (DM), hypertension, prevalent cardiovascular disease (CVD), dyslipidemia (abnormal cholesterol or triglyceride values), pulmonary dysfunction (PD, FEV1/FVC on spirometry<0.7%), smoking and use of diuretics.

Results

Overall, 66% of the participants in the cluster analysis were males, mean age was 47 years and mean body mass index 24. Clustering of comorbidities and lifestyle factors indicated three pathways i.e. 1) mainly cardiovascular risk factors and disease, 2) variables associated with insulin resistance and 3) variables associated with PD (Fig; A).
Five different clusters (C1 to C5) were identified based on clustering of observations (Fig1; B). C1 (n=16,063), mean age=46 years, characterized low rate of hypertension (14%) and PD (15%); none had obesity, kidney dysfunction, DM, CVD or dyslipidemia. C2 (n=750; mean age 51 years) had the highest proportions with gout (7.1%) and kidney dysfunction (100%), with no record of DM, CVD or use of diuretics. C3 (n=528; mean age=48 years) had the highest rates of CVD (100%) PD (22%), smoking (74%) and alcohol risk behaviour (41%). C4 (n=3673; mean age=47 years) had the highest percentage of males (75%), the highest BMI (25.91) and the grea-

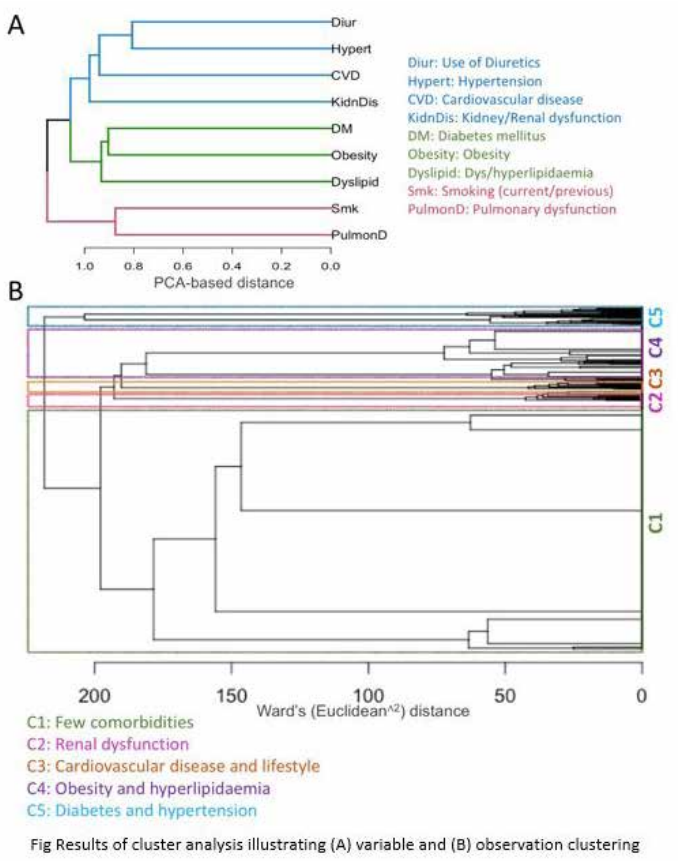


Fig Results of cluster analysis illustrating (A) variable and (B) observation clustering

test proportions with obesity (34%) and dyslipidemia (74%), regular smoking (65%) and alcohol risk behaviour (36%). C5 (n=1043; mean age=48 years) had by far the highest occurrence of DM (51%), frequent use of diuretics (52%), hypertension (54%) and the highest percentage of abnormal liver enzyme levels (16%).

Conclusion

Definition of clusters of comorbidities and lifestyle factors closely associated with gout, identified five separate "pathways" in this large health survey of the general population. "Pathways" relates to lifestyle, metabolism and specific comorbidity patterns. Further analyses will be performed to elucidate how these clusters predict diagnosed gout in this population.

References

1. Richette P, et al. Ann Rheum Dis 2015; 74(1):142-47.
2. Megan B, et al. Rheumatol 2018; 57(8):1358-63.

39 THE ABSOLUTE RISK OF CLINICALLY DIAGNOSED GOUT BY CLUSTERS OF GOUT ASSOCIATED COMORBIDITIES AND LIFESTYLE FACTORS – RESULTS FROM 30 YEARS FOLLOW-UP OF THE MALMÖ PREVENTIVE PROJECT COHORT IN SOUTHERN SWEDEN

Kontaktinformation: Mats Dehlin, mats.dehlin@vgregion.se

Tahzeeb Fatima[1], Peter M. Nilsson[2], Carl Turesson[3], Mats Dehlin[1], Nicola Dalbeth[4], Lennart T.H. Jacobsson[1], Meliha C. Kapetanovic[5]

[1] Department of Rheumatology and Inflammation Research, Sahlgrenska Academy, Gothenburg
[2] Department of Clinical Sciences, Lund University, Malmö
[3] Section of Rheumatology, Skåne University Hospital, Malmö
[4] Department of Medicine, University of Auckland, Auckland, New Zealand
[5] Department of Clinical Sciences Lund, Section of Rheumatology, Skåne University Hospital, Lund

Table Incidence and hazard ratios for gout in observation-clusters of MPP cohort

Cluster name	Main characteristics	Occurence, n (%)	Incident gout (n)	Incidence*	HR (95% CI)*
C1 Few comorbidities	No history of diabetes, CVD or renal disease.	16063 (72.8)	551	119	1
C2 Renal dysfunction	Renal dysfunction (100%), higher age at inclusion	750 (3.4)	53	269	2.31 (1.73-3.07)
C3 Cardiovascular disease and lifestyle	High frequency of CVD (100%), smoking (74%), alcohol risk behaviour (40%) &PD (22%)	528 (2.4)	26	224	2.41 (1.63-3.58)
C4 Obesity and hyperlipidaemia	High frequency of obesity (34%) & hyperlipidemia (74%)	3673 (16.7)	235	235	2.02 (1.73-2.35)
C5 Diabetes mellitus and hypertension	High frequency of DM (51%), hypertension (53%) & diuretics use (52%)	1043 (4.7)	45	184	1.98 (1.46-2.68)

*Incidence per 100,000 person-years at risk, *Adjusted for age and sex

Background

Clinical gout is predicted by a number of factors. Several of these (comorbidities and lifestyle) have been shown to cluster in gout patients1,2 indicating several different pathophysiological pathways, but it is not known if and to what extent such clusters predict gout. Objectives: To examine; 1) the prevalence of comorbidity clusters in the population and 2) the long-term absolute and relative risks for developing gout in these clusters defined at baseline in subjects of Malmö Preventive Project (MPP).

Methods

The MPP is a screening program for cardiovascular risk factors, alcohol abuse and breast cancer in Malmö, Sweden. A total of 33,346 individuals (67% male, age=45.7 years, mean follow-up=28.2 years), screened between 1974 and 1992, participated. Date of gout diagnosis was defined as the first visit with gout (using ICD-codes) to physicians within primary or specialized care, through linkage of the MPP cohort with regional and national health care registers. End of follow-up was defined as the date of first gout diagnosis, death, moving from the area or December 31st, 2014. Hierarchical clustering was performed in a subset of 22,057 individuals (screening period: 1975-1992) to group observations. Variables clustered included obesity, renal dysfunction, diabetes mellitus (DM), hypertension, cardiovascular disease (CVD), dyslipidemia, pulmonary dysfunction (PD), smoking and use of diuretics. For the five identified clusters, their population prevalence as well as the incidence and hazard ratio (HR) for gout were computed using cox-proportional hazard analysis in Rv3.5.2.

Results

Cluster-1 (C1) with "few comorbidities" was by far the most common in the population (73%), followed by cluster-4 (C4) characterized by "obesity and hyperlipidaemia" (17%). These two pathways included 86% of incident gout cases during the follow-up. The four clusters (C2-5) identified by different comorbidity patterns all resulted in a 2-3-fold increased risk for incident gout. The highest incidence for gout was seen for cluster-2 (C2) characterized by "renal dysfunction" and cluster-3 (C3) characterized by "cardiovascular disease" (Table).

Conclusion

In a population-based study, we identified five clusters based on gout-related comorbidities. Most gout cases occurred in the cluster characterized by few comorbidities. Such cases may have predisposing factors not captured by comorbidity patterns, e.g. genetics related to serum urate. In addition, we identified four pathways each defined by different comorbidity patterns and contributing to increased risk for gout, pathways that may require partly individual interventional strategies.

References

1. Richette P, et al. Ann Rheum Dis 2015; 74(1):142-47.
2. Megan B, et al. Rheumatol 2018; 57(8):1358-63.

40 ADEQUATE URATE LOWERING THERAPY FOR GOUT IS RARE IN CLINICAL PRACTICE BUT PRESERVES RENAL FUNCTION WHEN EFFECTED

Kontaktinformation: Valgerdur Sigurdardottir, valgerdur.sigurdardottir@ltdalarna.se

Valgerdur Sigurdardottir[1], Lennart T.H. Jacobsson[2], Anna Svärd[1], Mats Dehlin[2]

[1] Centrum för Klinisk Forskning (CKF) Dalarna, Falun
[2] Sahlgrenska Akademin, Avdelningen för Reumatologi och Inflammationsforskning, Göteborgs Universitet, Göteborg

Background
Optimal urate lowering therapy (ULT) as defined by most guidelines requires monitoring of serum urate (SU) and titration of the medication dose to achieve a target level of SU. In Sweden, allopurinol is the most widely used ULT and most patients with gout are managed in primary care. As a first step towards implementation of gout treatment guidelines in the Swedish region of Dalarna, we undertook a register study to assess how allopurinol is prescribed and to what extent monitoring of SU takes place.

Objectives
To determine the proportion of patients with gout that receive a) ULT and b) adequate ULT and to determine to what extent SU is monitored. A secondary aim was to explore the effects of adequate ULT on SU and estimated glomerular filtration rate (eGFR) over time.

Methods
Data was retrieved from the electronic healthcare record database of the region. The database holds records of all diagnoses at visits to physicians, prescriptions made in primary care as well as results of laboratory tests. We searched the database from 1997-2012 for individuals with a first diagnosis of gout during 2000-2012 and retrieved data for all prescriptions of allopurinol for the identified patients. Results and dates of SU and creatinine measurements after gout diagnosis were retrieved. MDRD eGFR was calculated from s-creatinine, sex and the age of the patient at the time of measurement. The value nearest in time before initiation of ULT was defined as the baseline measurement for both urate and creatinine. Duration of therapy was defined as number of days from first to last prescription adding 365 days (the usual period for which chronic medication is prescribed in Sweden). The mean daily dose of allopurinol was estimated from prescription data. Adequate ULT was defined as a mean daily dose of at least 300 mg of allopurinol and a duration of therapy of at least 2 years. Patients that had received adequate ULT were matched using propensity score on the basis of baseline eGFR and length of follow-up time to patients that received nonadequate ULT. Change from baseline in SU and eGFR was calculated and compared between groups.

Results
We identified 5433 patients with an incident gout diagnosis during 2000-2012 (and no gout diagnosis or prescription for ULT during 1997-1999). Of these, 2393 (44%) received at least one prescription for allopurinol. SU was measured at some time point after initiation of ULT in 58% of patients. Adequate ULT as defined above was prescribed for 154 patients (3%), of these, 112 (73%) had a SU measurement at some time point after initiation of therapy and 35 (23%) had such a measurement done within 6 weeks of starting treatment. Matched controls could be identified for 109 of the patients with adequate ULT. Mean urate and eGFR at the start of therapy and end of follow up for the group with adequate ULT treatment and the controls are shown in table 1.

Table 1. Values are mean (SD) or n (%)

	Adequate ULT, n=109	Matched controls, n=109	p-value
Age	66 (14)	68 (13)	0.19
Female, n (%)	25 (23)	38 (35)	0.05
Allopurinol daily dose in mg	359 (61)	119 (63)	<0.0001
Baseline s-urate, µmol/L	511 (111)	509 (100)	0.91
Baseline eGFR, ml/min	66 (21)	66 (21)	0.84
Length of follow-up, years	4.2 (3.5)	5.2 (3.9)	0.05
Δ s-urate, (baseline compared to last available value)	-168 (153)	-78 (125)	<0.0001
Δ e-GFR (baseline compared to last available value)	-1 (15)	-5 (16)	0.039
Last eGFR worse than baseline measurement, n (%)	50 (46)	67 (61)	0.021

Conclusion
ULT was prescribed to less than half of the patients identified. Adequate ULT was rare in clinical practice during the time period studied. Urate monitoring occurred in less than half of ULT-treated patients. The patients with adequate ULT achieved greater lowering of serum urate than matched controls and were more likely to maintain unchanged renal function over time.

41 OCCUPATIONAL EXPOSURE TO INORGANIC DUST – A NOVEL RISK FACTOR FOR INCIDENT GOUT?

Kontaktinformation: Valgerdur Sigurdardottir, valgerdur.sigurdardottir@ltdalarna.se

Valgerdur Sigurdardottir[1], Lennart T.H. Jacobsson[2], Anna Svärd1, Mats Dehlin[2]

[1] Centrum för Klinisk Forskning (CKF) Dalarna, Falun
[2] Sahlgrenska Akademin, Avdelningen för Reumatologi och Inflammationsforskning, Göteborgs Universitet, Göteborg

Background
Hyperuricemia and factors contributing to it are strong risk factors for gout but it is still unexplained why only some individuals with hyperuricemia develop gout. Additional risk factors for gout could be genetic or related to comorbidity, lifestyle or occupation. Occupational exposure to inorganic dust has previously been linked to an increased occurrence of inflammatory rheumatic diseases such as rheumatoid arthritis and could possibly increase the risk of gout.

Objectives
To evaluate if occupational exposure to inorganic dust increases the risk of incident gout.

Methods
Gout was defined as having at least one ICD-10 code for gout (M10 or M14.0) in the population based health care database of the Western Swedish Health Care Region (VEGA), during the years 2006-2012, without any gout diagnosis during at least 6 years previously. Individuals with gout that were employed in the 5-year period prior to first diagnosis were included for analysis. Population controls without gout were identified in the census register by Statistics Sweden, matching up to 5 controls per case on the basis of age, sex and place of residence, excluding controls that were not employed during the predictor period. Data on occupation (coded by the ISCO-88 standard) for the 5 years prior to inclusion were collected from official registries and were used to assign exposure status using a job exposure matrix for inorganic dust previously developed.[1] Data on predefined comorbidities (psoriasis, renal disease, alcohol abuse, obesity and diuretic

		Exposed to inorganic dust	Alcohol abuse	Obesity
Whole population	Gout cases, n=6120	1836 (30)	299 (5)	671 (11)
	Controls, n=25074	7074 (28)	538 (2)	821 (3)
	OR univariable	1.10 (1.04 to 1.17)	2.37 (2.04 to 2.74)	3.81 (3.42 to 4.26)
	OR multivariable*	**1.07 (0.99 to 1.14)**	2.26 (1.94 to 2.62)	3.75 (3.36 to 4.19)
Men	Gout cases, n=4751	1615 (34)	267 (6)	489 (10)
	Population controls, n=19339	6343 (33)	471 (2)	576 (3)
	OR univariable	1.07 (1.00 to 1.15)	2.42 (2.07 to 2.82)	3.93 (3.45 to 4.48)
	OR multivariable*	**1.03 (0.97 to 1.11)**	2.29 (1.95 to 2.69)	3.85 (3.38 to 4.39)
Women	Gout cases, n=1369	221 (16)	32 (2)	182 (13)
	Population controls, n=5735	731 (13)	67 (1)	245 (4)
	OR univariable	1.33 (1.12 to 1.57)	2.02 (1.31 to 3.11)	3.53 (2.87 to 4.34)
	OR multivariable*	**1.27 (1.07 to 1.51)**	2.03 (1.31 to 3.14)	3.50 (2.85 to 4.31)

***includes inorganic dust, alcohol abuse and obesity as covariates.**

treatment) considered to be possibly relevant confounders for the analyses were collected from VEGA, defined by ICD-10 codes. Alcohol abuse and obesity were found to be related both to gout and exposure to inorganic dusts and were therefore adjusted for in multivariate analyses. The effect of exposure to inorganic dust on risk of gout was described with odds ratios, calculated using conditional logistic regression, for the whole population and stratified by sex.

Results
6120 gout cases and 25074 controls were included. Frequencies of exposures (n (%)) and odds ratios (OR (95% conf. int.) for association of risk factors with incident gout are shown in the table below.

Conclusion
As expected, previously known risk factors for gout such as obesity and alcoholism were strongly associated with incident gout. In univariate analyses, exposure to inorganic dust was also associated with gout. After adjusting for alcohol abuse and obesity, the relationship was attenuated in men but remained in women, providing evidence that occupational exposure to inorganic dust might be a previously unknown risk factor for gout.

References
1. Lillienberg L, et al. Occupational exposure and new-onset asthma in a population-based study in Northern Europe (RHINE). Ann Occup Hyg. 2013;57:482-92.

42 MSU CRYSTALS TRIGGER RADICAL PRODUCTION AND NETS FORMATION IN HUMAN NEUTROPHILS AFTER IN VIVO TRANSMIGRATION

Kontaktinformation: Lena Björkman, lena.bjorkman@rheuma.gu.se

Lisa Davidsson[1], Lena Björkman[1], Karin Christensson[2], Johan Bylund[2]

[1] Institutionen för Medicin, avdelningen för reumatologi och inflammationsforskning, Sahlgrenska Akademin, Göteborgs universitet, Göteborg
[2] Institutionen för Odontologi, Avdelningen för oral mikrobiologi och immunologi, Sahlgrenska Akademin, Göteborgs universitet, Göteborg

Background
Gout is the most common inflammatory arthritis worldwide. Typically, the clinical course of gout includes intermittent flares of acute arthritis caused by oversaturation of uric acid that precipitates in and around the joints as needle-shaped monosodium urate (MSU)-crystals. Treatment of acute gout includes colchicine and usually results in a decrease of the inflammatory symptoms. However, the precise mechanism of action for colchicine is not clear. The inflammatory response in acute gout is initiated when MSU crystals are ingested by macrophages, leading to activation of the NALP3 inflammasome with concomitant release of IL1-beta that triggers a massive inflammatory response with recruitment of immune cells, predominantly neutrophils. The role of neutrophils in the joint fluid during acute gout is less clear, but as neutrophils are very potent cells capable of producing high levels of reactive oxygen species (ROS) and to form neutrophil extracellular traps (NETs), neutrophils are potentially highly proinflammatory. Previously, MSU crystals have been reported to induce NETs, but the precise molecular mechanism for NET formation in gout is obscure.

Objective
Tissues beyond circulation are the main sites where neutrophils are of pathological importance. In this study we investigated how MSU crystals interact with neutrophils from blood and tissue and how such interaction affects neutrophil ROS production and NET formation.

Material and methods
Peripheral blood neutrophils were obtained from healthy blood donors. Transmigrated tissue neutrophils were collected from synovial fluid of patients with non-gout arthritis 1, or using a controlled skin method 2 on healthy volunteers. In all experiments matched peripheral blood neutrophils was assayed in parallel. Neutrophils were challenged by MSU-crystals in vitro, and thereafter superoxide production was detected with isoluminol- or luminol-amplified chemiluminescence w/wo addition of colchicine. Quantification of NET formation was made using Sytox green DNA stain.

Results
MSU crystals activated human neutrophils to produce high levels of ROS at intracellular sites and colchicine was able to inhibit this response. The ROS response triggered by MSU crystals was potently potentiated by in vivo transmigration, i.e., the response of tissue neutrophils was much stronger than that of peripheral blood neutrophils. Priming of blood neutrophils with e.g., IL-1b also resulted in an augmented MSU response. MSU crystals also triggered the formation of NETs, but this process was independent on ROS production and could not be blocked by colchicine.

Conclusion
We show that MSU crystals trigger neutrophil activation and that tissue neutrophils respond more strongly to the crystals. MSU triggered the production of ROS at intracellular sites and ROS production was inhibitable by colchicine. We also confirm that MSU-induced NET formation is independent of ROS. Our findings may encourage future studies of the precise roles of ROS in gout.

References
1 Bjorkman, L. et al. Neutrophil recruitment to inflamed joints can occur without cellular priming. J Leukoc Biol, doi:10.1002/JLB.3AB0918-369R (2018).
2 Christenson, K. et al. Collection of in vivo transmigrated neutrophils from human skin. Methods Mol Biol 1124, 39-52, doi:10.1007/978-1-62703-845-4_4 (2014).

43 CARTILAGE PATHOLOGY IN RHEUMATOID ARTHRITIS

Kontaktinformation: Inger Gjertsson, inger.gjertsson@gu.se

Karin Önnheim[1], Shan Huang[1], Rikard Holmdahl[2], Inger Gjertsson[1]

[1] Dep of Rheumatology and Inflammation research, University of Gothenburg, Gothenburg
[2] Department of Medical Biochemistry and Biophysics, Karolinska Institute, Stockholm

Background
Rheumatoid arthritis (RA) is a chronic inflammatory disease during which articular cartilage is degrade. 90% of the protein contents in articular cartilage is collagen type II (CII) and autoantibodies directed against both native and citrullinated CII can be found in rheumatoid arthritis (RA)[1]. In mice, antibodies to CII induces arthritis. These antibodies recognize identical epitopes also in human, which suggests that they may play a pathogenic role also in human RA. Pro-inflammatory cytokines are closely connected with the pathogenesis in RA including IL-1β, which also is known to stimulate chondrocytes [2].Most studies on cartilage in RA are made in animal models, therefore the knowledge about the process in human cartilage is very limited.

Aim
Our project aims to understand how the chondrocytes and the cartilage are affected by autoantibodies to CII and IL-1β in patients with RA, and healthy controls and whether these factors contributes to joint pathology.

Material and methods
Cartilage tissue from RA patients or healthy controls (hip fractures) were collected from patients undergoing prosthetic surgery. Cartilage explants, 4 mm in diameter, were punched out from the cartilage and cultivated or snap frozen in OCT.
Explant cultivation: Explants (n=7) were cultured in vitro for two weeks with or without IL-1β. Medium was changes at day 1, 3, 6, 9, 12, 14 and supernatant was frozen immediately at -80°C until further analysis. Explant were cultivated in duplicates and supernatant were pooled prior to freezing.
LUMINEX: Joint inflammatory markers ADAMTS13, MMP13, IL-18, TNF, VEGF-α, IL-6, INFγ, and GM-CSF levels in the supernatant from cartilage described above was measured by human Magnetic Luminex Assay.

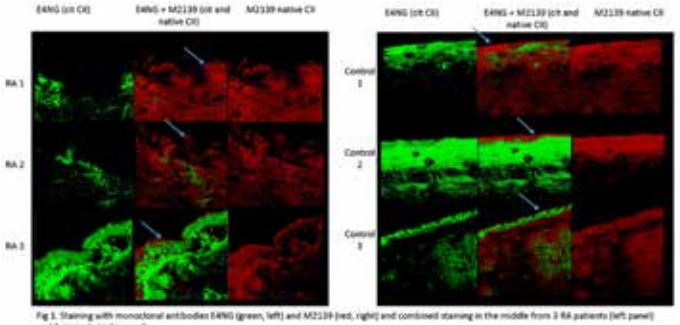


Fig 1. Staining with monoclonal antibodies E4NG (green, left) and M2139 (red, right) and combined staining in the middle from 3 RA patients (left panel) and 3 controls (right panel).

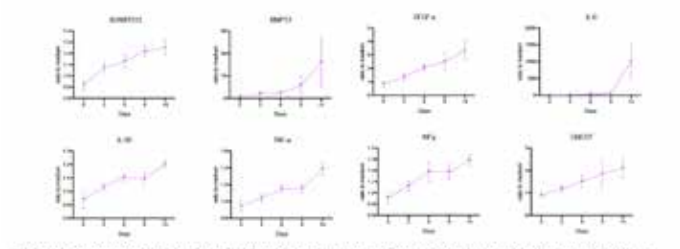


Fig 2. .Marker concentrations from IL-1β cultivated supernatant were correlated with medium control at corresponding days, and ratio from each patient was plotted according to incubation days. Data was collected from 7 individual experiments and presented as mean+/- SEM.

Confocal microscopy: 12 µm sectioned explants from 6 RA and 6 controls were blocked with mouse sera and avidin before staining with 3 biotinylated mouse monoclonal antibodies directed against different CII epitopes using Alexa Flour streptavidin fluorochromes. Antibodies against native CII (J1 epitope, M2139, red) and citrullinated CII (C1 epitope, E4NG, green) epitopes were used together with nuclei DAPI staining (blue).

Results
The most striking difference between RA and control patients in confocal images is the structural differences in the superficial layer directed towards the joint (fig 1, blue arrows). The affected RA cartilage shows a loosened, uneven structure compared to the smooth dense native CII fibers in the controls (antibody M2139, red). Further, the superficial layer in cartilage from RA patients have an increased number of nuclei (blue) that indicates proliferation. The distribution of citrullinated CII (antibody E4NG, green) varies both between patients and controls, but also within the patients group regarding location and amount of binding. Interestingly, citrullinated CII can be found both in RA and controls.
IL-1β potently stimulated the chondrocytes in the explants to produce a range of proteins including inflammatory cytokines/growth factors IL-18, TNF-a, INFγ, IL-6; metalloproteinase ADAMTS13, MMP-13 (fig 2.).

Conclusion
The cartilage from RA cartilage is severely affected especially the superficial layer compared to controls and, cartilage from both RA patients and control can be citrullinated. Under IL-1β induced condition, healthy chondrocytes are prominently activated with a significant inducement of inflammatory markers expression, which indicates a possible role of chondrocytes during inflammatory disease, e.g., RA, and its potential role of involving in inflammatory marker expression and disease pathogenesis.

References
1. Cook AD, Rowley MJ, Mackay IR, Gough A, Emery P. Antibodies to type II collagen in early rheumatoid arthritis. Correlation with disease progression. Arthritis and rheumatism 1996; 39(10):1720-1727.
2. Kay J, Calabrese L. The role of interleukin-1 in the pathogenesis of rheumatoid arthritis. Rheumatology (Oxford) 2004; 43 Suppl 3:iii2-iii9.

44 THE RHEUMATOID ARTHRITIS RISK GENE AIRE IS INDUCED BY CYTOKINES IN FIBROBLAST-LIKE SYNOVIOCYTES AND AUGMENTS THE PRO-INFLAMMATORY RESPONSE

Kontaktinformation: Anna-Karin H. Ekwall, ak.ekwall@rheuma.gu.se

Beatrice Bergström[1], Christina Lundqvist[1], Georgios K. Vasileiadis[1], Hans Carlsten[1], Olov Ekwall[2], Anna-Karin H. Ekwall[1]

[1] Institutionen för medicin, Avdelningen för reumatologi och inflammationsforskning, Göteborgs universitet, Göteborg
[2] Institutionen för kliniska vetenskaper, Avdelningen för Pediatrik, Göteborgs universitet, Göteborg

Background
The autoimmune regulator AIRE controls the negative selection of self-reactive T-cells as well as the induction of regulatory T-cells in the thymus by mastering the transcription and presentation of tissue restricted antigens (TRAs) in thymic cells. However, extra-thymic AIRE expression of hitherto unknown clinical significance has also been reported[1]. Genetic polymorphisms of AIRE have been associated with rheumatoid arthritis (RA), but no specific disease-mediating mechanism has been identified. Activated fibroblast-like synoviocytes (FLS) are key effector cells in RA,

mediating persistent inflammation and destruction of joints. Integrative analysis of omics data on FLS from RA patients and controls indicates that AIRE is differentially expressed in RA FLS [2].

Objectives
To determine the expression and regulation of AIRE in primary RA-FLS and investigate its role in these pathogenic cells.

Material and methods
Primary FLS were stimulated with cytokines for 12-24 hours and AIRE expression determined by qPCR and ImageStreamX flow cytometry. Stimulated or unstimulated AIRE-silenced and control RA-FLS samples were subjected to RNA seq, qPCR and flow cytometry. Differential gene expression (DEseq2) and pathway analyses (Ingenuity Pathway Analysis (IPA)) were performed on RNA-seq data. Synovial tissues from RA and control osteoarthritis (OA) patients were subjected to confocal microscopy for AIRE expression.

Results
No AIRE expression was detected in unstimulated FLS. However, AIRE mRNA expression was induced up to 222±102 fold by IL-1beta in RA-FLS compared with unstimulated (p=0.009). In OA-FLS AIRE was induced 39±9 fold (p<0.0001) by IL-1beta and 10±5 fold (p=0.011) by TNF compared with unstimulated. A synergistic effect was seen using IL-1beta + TNF (66±33 fold increase, p=0.009). The AIRE induction was significantly higher in RA than OA-FLS (p=0.035). Nuclear AIRE protein expression was detected in stimulated RA-FLS. RNA seq analysis identified 217 genes (adjP-value<0,05) regulated by AIRE in RA-FLS (n=4) of which 93% were annotated as interferon regulated genes. There was no enrichment of TRAs. The most significant pathways by IPA was "Antimicrobial response" and "Inflammatory response" (p=9.5E-25) and AIRE typically increased expression of pro-inflammatory chemokines, in particular CCL8 (21.6 fold, p=1.4E-12) and CXCL10 (6.8 fold, p=1.4E-12). This was confirmed by qPCR and CXCL10 levels in cell supernatants was significantly lower in AIRE-silenced compared to AIRE high RA-FLS (p=0.026). AIRE expressing cells were detected in RA but not in OA synovium.

Conclusions
AIRE is induced by cytokines in primary RA-FLS and promotes the expression of an interferon signature, including RA-associated chemokine genes. Furthermore, AIRE is expressed in the RA synovium. Our findings support a pro-inflammatory role of AIRE in arthritis.

References
1. Hobbs, R.P., et al., Keratin-dependent regulation of Aire and gene expression in skin tumor keratinocytes. Nat Genet, 2015. 47(8): p. 933-8.
2. Whitaker, J.W., et al., Integrative omics analysis of rheumatoid arthritis identifies non-obvious therapeutic targets. PLoS One, 2015. 10(4): p. e0124254.

45 A TOOLBOX OF RECOMBINANT ANTIBODIES TO STUDY HUMAN AMINOACYL TRNA SYNTHETASES IN HEALTH AND DISEASE

Kontaktinformation: Charlotta Preger, charlotta.preger@scilifelab.se

Charlotta Preger[1], Edvard Wigren[1], Elena Ossipova[1], Camilla Hofström[2], Oskar Andersson[2], Carolyn Marks[1], Per-Johan Jakobsson[1], Helena Persson[2], Susanne Gräslund[1]

[1] Structural Genomics Consortium, Rheumatology unit, Department of Medicine Solna, Karolinska Institutet, Stockholm
[2] Science for Life Laboratory, Drug Discovery and Development & School of Engineering Sciences in Chemistry, Biotechnology and Health, KTH—Royal Institute of Technology, Stockholm

Aminoacyl transfer (t)RNA synthetases (aaRSs) have long been viewed as mere housekeeping proteins and have thus often been overlooked in drug discovery. However, recent findings have revealed non-translational functions for many of them and several have been linked to autoimmune diseases, mainly myositis, where subgroups of patients have developed autoantibodies to these proteins.

In order to study the aaRSs further, recombinant high-affinity antibodies have been generated to a selection of 13 cytoplasmic and one mitochondrial aaRSs. Selected domains of these proteins were produced recombinantly in Escherichia coli and used as antigens in phage display selections using a synthetic human single-chain fragment variable (scFv) library. All targets yielded large sets of antibody candidates that were validated through a panel of binding assays (ELISA, HTRF, Luminex and SPR) against the purified antigens. The best binders were then tested in immunoprecipitation followed by mass spectrometry (IP-MS) for their ability to capture the endogenous protein from mammalian cell lysates (HEK293).

Successfully, we generated specific binders for all 14 targets and their affinities were in the low-nanomolar range. Furthermore, for antibodies targeting members of the multi-transfer RNA synthetase complex (MSC), we could detect all members of the complex co-immunoprecipitating with the target from several cell types.

This study is part of the open-access IMI project ULTRA-DD, and both antigens and antibodies generated are available for the scientific community without restrictions on use.

46 MPGES-1 INHIBITORS: THE NEXT GENERATION OF NSAIDS

Kontaktinformation: Filip Bergqvist, filip.bergqvist@ki.se

Filip Bergqvist[1], Julia Steinmetz[1], Karin Larsson[1], Marina Korotkova[1], Per-Johan Jakobsson[1]

[1] Karolinska Institutet, Karolinska Universitetssjukhuset, Stockholm

A major concern with NSAIDs is the increased risk for severe cardiovascular events, especially in patients suffering from rheumatoid arthritis. This limit the long-term use of NSAIDs. Selective inhibition of the inducible enzyme mPGES-1 decreases the production of inflammatory and oncogenic PGE2. In addition, there are new therapeutic opportunities with mPGES-1 inhibitors as recent data show anti-constrictive effects on vascular tone. We have just characterized five new highly selective and potent mPGES-1 inhibitors that we now use in several pre-clinical disease models.
The new inhibitors (named 934, 117, 118, 322, and 323) display cross-species activity with potent IC50 values towards recombinant human (10-29 nM) and rat (67-250 nM) mPGES-1. The inhibitors reduce PGE2 production in cellular assay (IC50 values 0.15-0.82 µM), in human whole blood (IC50 values 3.3-8.7 µM), and in air pouch exudates in mice (30-100 mg/kg p.o.). In a model of acute paw swelling in rat, the inhibitors reduced paw edema already at 1 mg/kg p.o. Human ex vivo wire-myography analysis showed reduced adrenergic vasoconstriction after incubation with the compounds.
We have demonstrated that daily treatment with an mPGES-1 inhibitor reduces tumor growth in two mice models of neuroblastoma. New data from our group show that inhibition of mPGES-1 altered the proteomic profile in A549 lung cancer cells towards a pro-cell death state. This increased the cytotoxicity of cytostatic drugs in vitro, and we are currently investigating this effect in vivo.
Our studies highlight that mPGES-1 inhibitors are anti-inflammatory and seemingly cardioprotective, which opens up for therapeutic opportunities of mPGES-1 inhibition in multiple diseases.

47 EXPRESSION OF PHENOL-SOLUBLE MODULIN BETA PROTECTS STAPHYLOCOCCUS AUREUS SEPTIC ARTHRITIS

Kontaktinformation: Namn Tao Jin, tao.jin@rheuma.gu.se

Zhicheng Hu[1], Patrick Ebner[2], Majd Mohammad[1], Manli Na[1], Abukar Ali[1], Ying Fei[1], Anders Jarneborn[1], Friedrich Götz[2], Tao Jin[1]
[1] Dept. of Rheumatology and Inflammation Research, Sahlgrenska Academy
[2] Department of Microbial Genetics, University of Tübingen, Tübingen, Germany

Background
Staphylococcus aureus (S. aureus) is the most common pathogen causing septic arthritis. Phenol-soluble modulins (PSMs), a novel staphylococcal toxin family, are implicated in pathogenesis of staphylococcal infections. So far, the role of PSMs in S. aureus septic arthritis is largely unknown.

Aims
To investigate the role of PSMs in staphylococcal septic arthritis in mice.

Methods
The induction and maintenance of septic arthritis by three different isogenic S. aureus strains differing in expression of PSMs (WT wildtype Newman, Δpsmα, and Δpsmβ) were studied in a murine model for septic arthritis. Arthritis and bone destruction were evaluated clinically and radiologically. To further understand the effect of PSMβ in septic arthritis development, mice with septic arthritis were treated with synthetic PSMβ peptides.

Results
Mice infected with S. aureus strain lacking PSMα had better weight development, less kidney abscesses, and lower bacterial burden in the kidneys compared to mice infected with WT or Δpsmβ strains. However, both severity and frequency of septic arthritis were similar in WT and Δpsmα strains infected mice. Interestingly, mice infected with Δpsmβ strain developed significantly more severe clinical arthritis compared to WT and Δpsmα strains, which was confirmed by later μCT analyses, suggesting that expression of PSMβ in S. aureus is protective in S. aureus septic arthritis. Importantly, the treatment of synthetic PSMβ peptides tended to attenuate the severity of septic arthritis.

Conclusion
PSMα and β play distinct roles in S. aureus septic arthritis: PSMα aggravates S. aureus systemic infection, whereas PSMβ expression protects septic arthritis development.

48 JAK-INHIBITORS IN S AUREUS INFECTIONS

Kontaktinformation: Anders Jarneborn, anders.jarneborn@vgregion.se

Anders Jarneborn[1], Majd Mohammad[1], Tao Jin[1]
[1] Avdelningen för reumatologi och inflammationsforskning, Institutionen för medicin, Sahlgrenska Akademin, Göteborgs Universitet, Göteborg

Background
Tofacitinib, an inhibitor of janus kinase (JAK), is a novel drug for the treatment of rheumatoid arthritis (RA). As with other immunosuppresive treatments there is a fear for infections in tofacitinib treated patients. Both septic arthritis and sepsis caused by Staphylococcus aureus (S. aureus) are severe infections with high degree of loss-of-function and mortality, for which RA patients are at risk.

Aims
To examine wheather the use of tofacitinib increases the susceptibility and severity of S. aureus sepsis and septic arthritis in mice.

Materials and methods
NMRI mice pre-treated with tofacitinib were inoculated intravenously with both arthritogenic and septic dose of S. aureus. Clinical signs of arthritis, mortality rate, weight development, severity of bone erosions in joints analysed with micro-CT, kidney bacterial burden, and cytokine levels in blood were compared between groups. In vitro, tofacitinib treated mouse splenocytes were stimulated with various S. aureus derived stimuli.

Results
In the septic arthritis experiments tofacitinib aggravated arthritis with a higher degree of bone erosion as seen on micro-CT imaging of joints compared to control mice. However, in the sepsis experiments, tofacitinib treated mice showed a significantly better survival compared to control mice. Tofacitinib dose-dependently inhibited splenocyte proliferation in response to TSST-1 and dead S. aureus. Cytokine analysis showed a strong inhibition of IFN-gamma secretion by tofacitinib.

Conclusion
Tofacitinib treatment results in more severe S. aureus septic arthritis , but has a positive effect on survival in S. aureus sepsis.

49 THE YIN AND YANG OF LIPOPROTEINS IN DEVELOPING AND PREVENTING INFECTIOUS ARTHRITIS BY STAPHYLOCOCCUS AUREUS

Kontaktinformation: Tao Jin, tao.jin@rheuma.gu.se

Majd Mohammad[1], Minh-Thu Nguyen[2], Cecilia Engdah[1], Manli Na[1], Anders Jarneborn[1], Zhicheng Hu[1], Anna Karlsson[1], Rille Pullerits[1], Abukar Ali[1], Friedrich Götz[1], Tao Jin[1]
[1] Avd. för Reumatologi och Inflammationsforskning, Sahlgrenska Akademin, Göteborg
[2] University of Tübingen, Tübingen, Germany

Background
Rapid bone destruction often leads to permanent joint dysfunction in patients with septic arthritis, which is mainly caused by Staphylococcus aureus (S. aureus). Staphylococcal cell wall components are known to induce joint inflammation and bone destruction.

Aims
We sought to determine the role of S. aureus lipoproteins in septic arthritis.

Material and methods
Purified S. aureus lipoproteins (Lpps), S. aureus mutant lacking Lpp diacylglyceryl transferase (lgt) and its parental strain were intra-articularly injected to knee joint of wildtype or TLR2 deficient mice. The severity of arthritis was examined clinically, histologically, and radiologically.

Results
We show that a single intra-articular injection of S. aureus lipoproteins (Lpps) into mouse knee joints induced chronic destructive macroscopic arthritis through TLR2. Arthritis was characterized by rapid infiltration of neutrophils and monocytes. The arthritogenic effect was mediated mainly by macrophages/monocytes and partially via TNF-α but not by neutrophils. Surprisingly, a S. aureus mutant lacking Lpp diacylglyceryl transferase (lgt) caused more severe joint inflammation, which coincided with higher bacterial loads of the lgt mutant in local joints than those of its parental strain. Coinjection of pathogenic S. aureus LS-1 with staphylococcal Lpps into mouse knee joints caused improved bacterial elimination and diminished bone erosion.

The protective effect of the Lpps was mediated by their lipid moiety and was fully dependent on TLR2 and neutrophils. The blocking of CXCR2 on neutrophils resulted in total abrogation of the protective effect of the Lpps.

Conclusions
Our data demonstrate that S. aureus Lpps elicit innate immune responses, resulting in a double-edged effect. On the one hand, staphylococcal Lpps boost septic arthritis. On the other hand, Lpps act as adjuvants and activate innate immunity, which could be useful for combating infections with multiple drug-resistant strains.

50 IGF1R AND FOXO1 SIGNALING IN HIPPOCAMPUS DURING EXPERIMENTAL ARTHRITIS

Kontaktinformation: Malin Erlandsson, malin.erlandsson@gu.se

Caroline Wasén[1], Roda Abdillahi[1], Lovisa Leifsdottir[1], Lina Juzokaite[1], Karin M. E. Andersson[1], Malin C. Erlandsson[1], Marie Kalm[2], Maria I. Bokarewa[1]

[1] Department of Rheumatology and Inflammation Research, Institute of Medicine, University of Gothenburg, Göteborg
[2] Department of Pharmacology, Institute of Neuroscience and Physiology, University of Gothenburg, Göteborg

Background
Depression and cognitive impairment have been frequently reported in rheumatoid arthritis (RA). It was recently reported that reduced hippocampus volume in RA patients may be linked to functional disability and enhanced pain response (Andersson and Wasén et al. 2018). Reduced hippocampus volume was related to declined neurogenesis due to inflammation driven resistance to Insulin-like growth factor-1 (IGF1). Although the transcription factor Forkhead box class O1 (FoxO1) may contribute to RA pathogenesis, little is known about its role in neurological manifestations of RA.

Purpose
We aimed to investigate IGF1 receptor (IGF1R) regulated FoxO1 signaling in the hippocampus during experimental RA and its relation to functional impairment and pain.

Method
Mice with collagen-induced arthritis were treated with short hairpin RNA targeting IGF1R (shIGF1R) to inhibit its expression. Mice were analyzed for behavioral changes by recording the time spent at different activities. Immunohistofluorescence of the hippocampus was used to analyze IBA1+, DCX+ and serin256-phosphorylated FoxO1+ cells (pFoxO1; inhibitory phosphorylation resulting from IGF1R signaling) in the hippocampal structures Dentate gyrus (DG) and Cornu Ammonis (CA1-3).

Results
The density (cells/area) of IBA1+ microglial cells decreased in DG and CA regions of mice treated with shIGF1R, indicating reduced local inflammation in the hippocampus. The mice with inhibited IGF1R expression had a 2-fold bigger area of CA3 subfield, suggesting rescued neurogenesis. However, the density of pFoxO1+ cells in DG and CA3 was negatively correlated with the number of DCX+ developing neurons (r= -0.46 and r= -0.65) and the density of pFoxO1+ cells was reduced in DG (p=0.0046) and CA3 (p=0.033) when IGF1R was inhibited. A possible explanation to this result is that only peripheral effects of shIGF1R treatment were confirmed, and the density of pFoxO1+ cells in DG and CA3 was positively correlated with serum levels of IGF1 (r= 0.64 and r= 0.51). Interestingly, the density of pFoxO1+ cells in DG and CA3 was negatively associated to active behaviors (locomotion, r= -0.70 and -0.62; rearing, r= -0.65 and -0.70) and positively associated to passive behaviors (minor movements, r=0.77 and 0.70; immobility, r= 0.45 and 0.41).

Conclusion
We conclude that the use of shIGF1R to inhibit the expression of IGF1R have direct effects on the peripheral immune system, and indirect effects on local inflammation and IGF1R signaling in the hippocampus during experimental RA. Inhibition of IGF1R resulted in increased FoxO1 phosphorylation, possibly as a result of reduced local inflammation and increased serum levels of IGF1. However, phosphorylation of FoxO1 in hippocampus was related to inactivity in the mice and fewer developing neurons.

References
Andersson and Wasén et al. Inflammation in the hippocampus affects IGF1 receptor signaling and contributes to neurological sequelae in rheumatoid arthritis. PNAS. 2018.

Systemsjukdomar

51 PREVALENCE OF BIOPSY PROVEN GIANT CELL ARTERITIS IN SOUTHERN SWEDEN

Kontaktinformation: Pavlos Stamatis, pavlos.stamatis@med.lu.se

Pavlos Stamatis[1], Aleksandra Turkiewicz[2], Martin Englund[2], Carl Turesson[3], Aladdin Mohammad[4]

[1] Department of Clinical Sciences, Rheumatology, Skåne University Hospital, Lund University, Lund
[2] Clinical Epidemiology Unit, Lund University, Lund
[3] Department of Clinical Sciences, Rheumatology, Skåne University Hospital, Lund University, Malmö
[4] Department of Clinical Sciences, Rheumatology, Skåne University Hospital, Lund University, University of Cambridge, Lund

Background
Few previous studies have examined the prevalence of giant cell arteritis (GCA). The main objective of this study is to investigate the prevalence of temporal artery positive GCA (TAB+GCA) in southern Sweden.

Methods
The study area is the region of Skåne in southern Sweden with a population of 1.3 million inhabitants (36% aged ≥50 years). To be included in the study, patient should fulfil the following criteria: 1) diagnosed with TAB+GCA after 1997, 2) living in Skåne at date of diagnosis and date of point prevalence (p.p.) on December 31st, 2014, and 3) on oral glucocorticosteroids (GCs) treatment at the date of p.p. (that redeemed at least one GC prescription during 12 months preceding the date of p.p.) The national Swedish prescribed drug register (SPDR) has been used to identify patients still on GC treatment. The SPDR include data on all the purchased prescriptions since July 2005 and data available through October 2015. Using the unique Swedish personal identification number (PIN), the GCA cohort has been linked to the SPDR. Accordingly, for the prevalence estimate, the numerator was all patients with TAB+GCA who fulfil the study criteria and the denominator was all people aged ≥50 years living in Skåne at date of p.p. The ATC-codes of Betamethasone, Dexamethasone, Prednisolone, Prednisone and Methylprednisolone were identified.

Results
At the date of p.p. estimate a total of 606 patients were alive and living in the study area. Of them 354 patients were on GCs at date of p.p. according to the study definition. Accordingly, the p.p. of TAB+ GCA per 100 000 inhabitants aged ≥50 years was 74.3 (95% CI 66.5-82); 40.1 (31.8-48.3) for men and 105.4 (92.7-118.2) for women. The median time of being on GCs (from time of diagnosis to date of p.p.) 2.29 years (IQR 0.97-4.48). The percentage of patients with positive TAB who were alive at date of p.p. without GC treatment was 41.6%.

Table 3. Point prevalence (p.p.) * of GCA 31st December 2014 in southern Sweden

	All	Men	Women
Point prevalence (95% CI), for patients still on GC	74.3 (66.5-82.0)	40.1 (31.8-48.3)	105.4 (92.7-118.2)
Cumulative point prevalence (95% CI)	127.1 (117-137.3)	73.5 (62.4-84.7)	176 (159.5-192.4)
Mean age at GCA diagnosis (SD)	73.0 (7.6)	72.0 (7.8)	73.4 (7.6)
Mean age at point prevalence date (SD)	78.4 (8.1)	76.8 (8.8)	78.9 (7.8)

*Per 100 000 inhabitants aged ≥50 years, CI: confidence interval, GC: Glucocorticosteroids

Conclusion
This is the first estimate of prevalence of TAB+GCA from Sweden. Our prevalence estimate takes into account that GCA may be cured with patients no longer regarded as prevalent cases.

52 INCIDENCE AND SEASONAL VARIATION OF BIOPSY-PROVEN GIANT CELL ARTERITIS – REVISITED A 20 YEARS POPULATION-BASED STUDY FROM SWEDEN

Kontaktinformation: Pavlos Stamatis, pavlos.stamatis@med.lu.se

Pavlos Stamatis[1], Carl Turesson[2], Jan-Åke Nilsson[1], Aladdin Mohammad[3]

[1] Department of Clinical Sciences, Rheumatology, Skåne University Hospital, Lund University, Lund
[2] Department of Clinical Sciences, Rheumatology, Skåne University Hospital, Lund University, Malmö
[3] Department of Clinical Sciences, Rheumatology, Skåne University Hospital, Lund University, University of Cambridge, Lund

Background
Giant cell arteritis (GCA) is the most common vasculitis amongst elderly. The objective of this study is to investigate the incidence rate and seasonal variation of biopsy-proven GCA in a well-defined population in southern Sweden.

Methods
The study area was the region of Skåne with a total population of 1,324,565, December 2016 (37% aged ≥50 years). Patients who underwent temporal artery biopsy (TAB) between 1997 and 2016 were identified. Only patients with TAB positive GCA were included. The study period was divided into 4 five-year periods to study possible fluctuation of the incidence over time. Date of TAB was used to study possible seasonal variations in the incidence of TAB+ GCA. The seasons were defined as follow: winter (December-February), spring (March-May), summer (June-August) and autumn (September-November). Incidence rates per 100,000 persons aged ≥50 years are presented.

Results
A total of 5886 TABs were identified during the study time. Of these, 1202 patients (864 females, 72%) were found to have a positive TAB during the 20-year period. The mean age at diagnosis was 75.1 years (SD 8.0). The annual incidence rate of biopsy-proven GCA per 100000 persons in the age group ≥50 years was estimated to 13.7 (95% CI 12.9-14.4) and was higher among women (18.4 vs. 8.2 for men, p=0.04). There was a decline in the incidence rate over time: 15.8 during period 1 (1997-2001) vs. 12.2 in period 4 (2012-2016), p<0.01 (Table 1).

Table 2 Incidence rate of biopsy-proven GCA in Southern Sweden 1997-2016. In order to study possible fluctuations over time the study period was divided in four 5-year periods.

	All	95% CI	Men	95% CI	Women	95% CI
Period 1 (1997–2001)	15.8	14.1 - 17.6	7.9	6.1 - 9.7	15.8	14.1 - 17.6
Period 2 (2002–2006)	13.2	11.6 - 14.7	8.0	6.3 - 9.8	17.6	15.2 - 20.1
Period 3 (2007–2011)	13.6	12 - 15.1	7.4	5.8 - 9.1	19.0	16.5 - 21.5
Period 4 (2012–2016)	12.2	10.8 - 13.6	9.2	7.5 - 11	15.0	12.8 - 17.1
1997-2016	13.6	12.9 - 14.4	8.2	7.3 - 9	18.4	17.2 - 19.7

The incidence rate of performed TABs declined during the study period, 76.4 (95% CI 72.6-80.6) during period 1 vs. 58.4 (95% CI 55.4-61.5) during period 4, p<0.01. There was a seasonal variation in the diagnosis of GCA, with more patients diagnosed during spring and summer compared to autumn and winter (331 patients diagnosed during spring, 319 during summer, 282 during autumn and 270 during winter, p=0.04).

Conclusions
The incidence rate of biopsy-proven GCA decreased over time. Similarly, the number of performed TABs decreased during the study period. A possible explanation for this may be an increased use of imaging studies in diagnosing GCA. We also observed a seasonal variation, with more patients diagnosed during spring and summer, possibly due to season related exposures, e.g. infections.

53 INFECTIONS ARE ASSOCIATED WITH INCREASED RISK OF GIANT CELL ARTERITIS – A POPULATION-BASED CASE-CONTROL STUDY FROM SOUTHERN SWEDEN

Kontaktinformation: Pavlos Stamatis, pavlos.stamatis@med.lu.se

Pavlos Stamatis[1], Aleksandra Turkiewicz[2], Martin Englund[2], Göran Jönsson[3], Jan-Åke Nilsson[1], Carl Turesson[4], Aladdin Mohammad[5]

[1] Department of Clinical Sciences, Rheumatology, Skåne University Hospital, Lund University, Lund

[2] Clinical Epidemiology Unit, Lund University, Lund

[3] Department of Clinical Sciences, Infection Medicine, Skåne University Hospital, Lund University, Lund

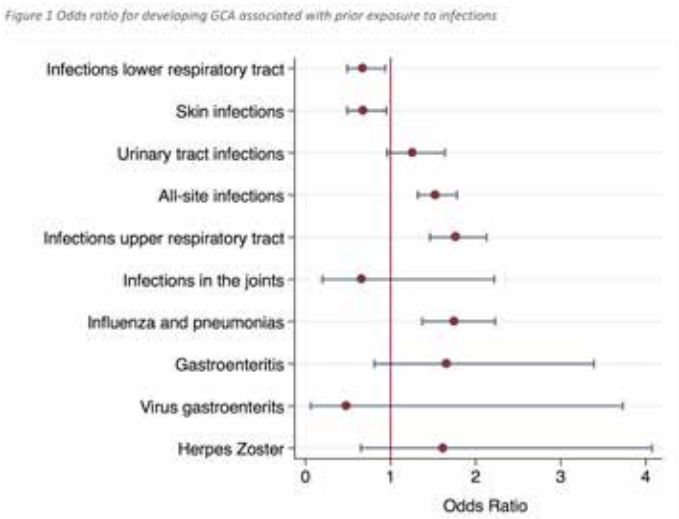
[4] Department of Clinical Sciences, Rheumatology, Skåne University Hospital, Lund University, Malmö

[5] Department of Clinical Sciences, Rheumatology, Skåne University Hospital, Lund University, University of Cambridge, Lund

Purpose
Previous studies have implicated infections as a risk factor for giant cell arteritis (GCA). The purpose of this study was to investigate the association between occurrence of infections and the development of GCA.

Methods
Patients diagnosed with biopsy-proven giant GCA between 2000 and 2016 were identified through the database of the Department of Pathology in Skåne, the southernmost region in Sweden. For each GCA case, 10 controls were randomly selected from the background population matched for age, sex, and area of residence. The index date for the controls was the same as the diagnosis date of their respective cases. We identified all infection events diagnosed before the date of GCA diagnosis (and before index date for controls) between 1998 and 2016, using the Skåne Healthcare Register. First, we calculated the odds ratio (OR) of being exposed to an infection in GCA cases vs controls. Second, we evaluated the type of infection closest to the biopsy-proven GCA diagnosis (or index date). Conditional logistic regression models were used to calculate OR and 95% confidence intervals (CI).

Results
1005 patients with biopsy-proven GCA (714 women, 71%, mean age 75,2 years (8,03) and 10 050 controls were included in this study. The median time from the latest diagnosed infection to GCA diagnosis was 0.8 years (interquartile range (IQR) 0.1 - 3.4), whereas the corresponding median time for the controls was 2.1 years (IQR 0.8-4.5). In total, 517 unique infection diagnoses were assigned for GCA cases prior to the biopsy-proven diagnosis as compared to 4084 unique infections for controls. Infections were more



common among patients going to develop GCA vs. controls (51% vs. 41%) yielding the OR of 1.78 (95% CI 1.53–2.07). Acute upper respiratory tract infections, pneumonia, influenza and non-specific bacterial infections, were associated with increased odds for later biopsy-proven GCA (Figure 1).

Conclusions
Infections, especially upper respiratory tracts infections, pneumonias and influenza were associated with later development of biopsy-proven GCA. Our findings corroborate previous reports of an association between GCA and infectious pathogens of the respiratory tract. The observed associations with unspecified infections may partly reflect diagnostic uncertainty in the early phase of GCA.

54 INFECTIONS ARE ASSOCIATED WITH INCREASED RISK OF MPO- BUT NOT PR3-ANCA ASSOCIATED VASCULITIS – A POPULATION-BASED CASE-CONTROL STUDY FROM SOUTHERN SWEDEN

Kontaktinformation: Jens Rathmann, jensirat@gmail.com

Jens Rathmann[1], David Jayne[2], Göran Jönsson[3], Mårten Segelmark[4], Jan-Åke Nilsson[1], Aladdin Mohammad[1,2]

[1] Reumatologiska Kliniken, Skånes Universitetssjukhus/Lunds Universitet, Lund/Malmö

[2] Addenbrooke's Hospital, Nephrology, University of Cambridge, Cambridge, UK

[3] Infektionskliniken, Skånes Universitetssjukhus/Lunds Universitet, Lund

[4] Njurmedicinska Kliniken, Skånes Universitetssjukhus/Lunds Universitet, Lund

Background
Previous studies have implicated infection as a contributing factor in the pathogenesis of ANCA associated vasculitis (AAV). Host response to microbials can lead to loss of tolerance and production of anti-neutrophil cytoplasmic antibodies (ANCA). ANCA are important in the development of AAV. This study examines the occurrence of infections and later development of MPO- or PR3-ANCA associated vasculitis.

Methods
All incident cases of AAV in the geographical area of Skåne (Pop.0.75mio) in Southern Sweden, diagnosed between 2000 and 2016 were included. For each AAV case, 10 randomly selected controls from the background populations were matched for age, sex and area of residence. Date of AAV diagnosis in patients was defined as index date in respective controls. Using the ICD-10 codes, all infection events before the date of AAV diagnosis (and index date for controls) were identified using a centralized database, the Skåne healthcare register. Infections occurring within ≤6 months

Table: Odds ratio of developing AAV after exposure to different infections diagnosed ≥ 6 months prior to the onset of AAV

Types of infections	All OR (95% CI)	MPO-ANCA OR (95% CI)	PR3-ANCA OR (95% CI)
All infections	1.25 (0.93-1.68)	1.70 (1.08-2.68)	0.79 (0.52-1-21)
URTI	1.43 (1.01-2.01)	1.81 (1.08-3.03)	0.99 (0.59-1.66)
Pneumonia/ Influenza	1.70 (1.02-2.24)	2.13 (1.07-4.24)	1.42 (0.56-3.07)
LRTI	1.13 (0.64-1.99)	1.02 (0.44-2.37)	1.30 (0.57-2.99)
Skin-infections	0.41 (0.19-0.86)	0.32 (0.96-1.06)	0.58 (0.22-0.51)
ENT infections	1.54 (0.93-2.54)	2.71 (1.31-5.65)	0.59 (0.20-1.70)
UTI	1.15 (0.60 -2.10)	0.70 (0.23-2.09)	1.20 (0.51-2.84)

URTI: Upper respiratory tract infections, LRTI: lower respiratory infections, ENT: ear-nose and throat, UTI: urinary tract infection

prior to AAV diagnosis (or index-date) were excluded to reduce the risk for incorrect classification as an AAV manifestation. Conditional logistic regression models were used to calculate odds ratio (OR) and 95% confidence intervals (CI). Patients were stratified according to their ANCA serotype (PR3- and MPO-ANCA).

Results

273 patients with AAV (131 women, 48%) and 2717 controls were included in this study. In total 138 (50.5%) unique infections were assigned for AAV prior to the date of AAV diagnosis vs 1266 (46.6) for controls. Upper respiratory tract infections (URTI) and pneumonia (PN) were more common among patients going to develop AAV vs. controls (URI: 21.2% vs. 16.8%, PN: 8.1% vs 5.3) yielding an OR of 1.42 (95% CI 1.01-2.01) for URTI and 1.70 (95% CI 1.02-2.82) for PN (Table 1). The differences were only significant for patients with MPO-ANCA and not PR3-ANCA associated diseases. The median time from the infection nearest onset of AAV was 37.9 months (IQR 11.9-51.9) in patients, whereas the corresponding median time for the controls 46.1 months (IQR 16.5-63.9).

Conclusions

Upper respiratory tract infections, ENT infections as well as pneumonias and influenza were associated with later development of MPO-ANCA positive vasculitis but not PR3-ANCA vasculitis. The differences in the genetic characteristics of MPO- and PR3-ANCA associated diseases might affect the consequences of triggering the immune system by different microorganisms.

55 INCIDENCE AND PREDICTORS OF SEVERE INFECTIONS IN ANCA ASSOCIATED VASCULITIS IN A POPULATION-BASED COHORT – PRELIMINARY RESULTS

Kontaktinformation: Jens Rathmann, jensirat@gmail.com

Jens Rathmann[1], David Jayne[2], Göran Jönsson[3], Mårten Segelmark[4], Jan-Åke Nilsson[1], Aladdin Mohammad[1, 2]

[1] Reumatologiska Kliniken, Skånes Universitetssjukhus/Lunds Universitet, Lund/Malmö
[2] Addenbrooke´s Hospital, Nephrology, University of Cambridge, Cambridge, UK
[3] Infektionskliniken, Skånes Universitetssjukhus/Lunds Universitet, Lund
[4] Njurmedicinska Kliniken, Skånes Universitetssjukhus/Lunds Universitet, Lund

Background

Infectious complications in ANCA associated vasculitis (AAV) are a major cause of morbidity and mortality. The aim of this study was to determine the incidence rates, predictors and outcome of severe infections in AAV.

Methods

We conducted a population-based cohort study in Southern Sweden with 326 incident cases of AAV diagnosed between 1997 and 2016. Diagnosis of vasculitis was confirmed by case record review and patients were classified according to the European Medicines Agency algorithm. Demographics, clinical, and laboratory data was collected from time of diagnosis and follow-up. All events of severe infection (required hospitalization and treated with intravenous antimicrobials) were identified. Vasculitis disease activity was evaluated using the Birmingham Vasculitis Activity Score (BVAS) and the extent of organ damage was assessed using the vasculitis damage index (VDI). Patients were followed from time of AAV-diagnosis to death or end of study, December 2017.

Table 1. Severe infections in 221 patients with ANCA associated vasculitis

	All patients (n=262)	Severe infection (n=104)	No severe infection (n=158)	P-value
Age at diagnosis, mean ±SD, years.	64.5 ±17,1	70.7 ±13	60.6±17	<0.001
Sex, Female: Male	122: 140	42: 62	80: 78	0.1
Diagnosis: GPA/MPA/EGPA	142/101/19	51/48/5	91/43/14	0.09
PR3-ANCA +: MPO-ANCA +:None	131: 109: 22	44: 53: 7	87: 56: 15	0.04
BVAS at diagnosis, mean, SD	15±5.7	16.3 ±6.2	14.1± 5.7	0.04
Laboratory data at diagnosis				
S-creatinine, µmol/l , median (IQR)	135 (74-283)	209 (91-3670)	103 (71-230)	<0.001
Haemoglobin g/l, mean, SD	108±19	108±20	111±19	0.25
White blood cell count, mean, SD	13.9 ±5.1	13± 4.2	14± 5.8	0.66
Platelet count, mean, SD	372±147	345±137	390±152	0.019
CRP, mg/l, median (IQR)	77 (24.5-133)	73.5 (21-130)	82 (27-134)	0.75
GFR ml/min, median (IQR)	44.1 (17-84)	25 (13-70)	59 (23-96)	0.01
Deaths, n (%)	103 (39)	58 (56)	45 (29)	<0.001
ESRD, n (%)	34 (13)	22 (21)	12 (8)	0.01
BVAS at 12 months, mean (SD)	0.9 ±3	0.76 ±2.1	0.97 ±2.7	
VDI, at 12 months, mean (SD)	1.65 ±1.4	2.00±1.5	1.3±1.3	<0.001
Induction treatment CYC, N (%)	202 (77)	82 (78)	120(76)	0.58
Daily corticosteroid dosages (mg)				
0 months (onset), median, (IQR)	60 ±(40-61)	60 ±(40-60)	60 ±(40-65)	0.9
3 months, median (IQR)	15 (12.5-20)	15 (12.5-20)	15 (12.5-20)	0.8
6 months	10 (7.5-15)	10 (7.5-15)	10 (7.5-12.5)	0.8
9 months	7.5 (7.2-10)	7.5 (5-10)	7.5 (7.5-10)	0.6
12 months	6.25 (5-10)	6.25 (5-10)	6.25 (5-8.75)	0.9

GPA: granulomatosis with polyangiitis, MPA: microscopic polyangiitis, EGPA: eosinophil granulomatosis with polyangiitis, PR3: proteinase-3, MPO: myeloperoxidase, BVAS: Birmingham Vasculitis Activity Score, IQR: interquartile range, CRP: C - reactive protein, eGFR: estimated glomerular filtration rate at disease onset, ESRD: end-stage renal disease, VDI: vasculitis damage index. Chi2 test, Student T test and Mann Whitney test were used in comparison between groups when appropriate. P <0.05 was considered as significant.

Results

Data on 262 patients (122 women) was collated and are presented in this report. Total time of follow-up was 1368 person-year. In total 104 (39.7%) patients experienced at least one severe infection during the follow-up, 33 (12.5%) suffered 2 infections and 14 (5%) suffered 3 severe infections or more. The incidence rate of severe infection was higher during the first year after diagnosis compared to that during the whole follow-up time (24.3/100 year vs. 7.6/100, p<0.001). Patients with severe infection were older at diagnosis, had higher serum creatinine, higher BVAS at diagnosis and higher VDI after 12 months (Table 1). They were also more likely to be MPO-ANCA positive. Age and BVAS at diagnosis were the only factors that independently predicted severe infection. Severe infection was associated with worse prognosis in terms of renal and patient's survival.

Conclusion

In this cohort the incidence rate of severe infection is comparable to earlier published data in AAV. The rate of severe infection is higher early in the disease course. Severe infection is still a major clinical problem and is associated with high age, increased disease activity at diagnosis, renal disease and MPO-ANCA positivity. Severe infection is associated with a worse prognosis.

56 CLINICAL FEATURES AND OUTCOME OF ANTI-MELANOMA DIFFERENTIATION ASSOCIATED GENE 5 (MDA5) ANTIBODY POSITIVE IDIOPATHIC INFLAMMATORY MYOPATHIES – AN EXPERIENCE FROM THE REGION VÄSTRA GÖTALAND

Kontaktinformation: Josefin Marklund, josefin.m.marklund@vgregion.se

Josefin Marklund[1], Balsam Hanna[1,2], Tao Jin[1,2], Rille Pullerits[1,2,3]

[1] Department of Rheumatology, Sahlgrenska University Hospital
[2] Department of Rheumatology and Inflammation Research, Institute of Medicine, Sahlgrenska Academy at University of Gothenburg
[3] Department of Clinical Immunology and Transfusion Medicine, Sahlgrenska University Hospital, Gothenburg

Background
Autoantibodies against melanoma differentiation-associated protein 5 (MDA5) are often associated with amyopathic dermatomyositis and rapidly progressive interstitial lung disease (ILD).

Objective
The aim of this study was to assess the prevalence and clinical significance of anti-MDA5 antibodies in patients from Region Västra Götaland whose blood samples were referred to analysis of myositis-specific (MSA) and myositis-associated antibodies (MAA).

Methods
Patients who had positive or borderline values of anti-MDA5 antibodies as analysed by line immunoassay (Euroline Myositis Profile, Euroimmun) at the Department of Clinical Immunology, Sahlgrenska University Hospital during 2016-2018, were identified. The medical records of adult patients were retrospectively examined with respect to clinical disease features, organ involvement and outcome.

Results
In total, 636 blood samples were analysed and 5.8 % tested positive (n=17) or had borderline values (n=20) for anti-MDA5. Children and patients outside of Region VG (n=9) were excluded from analysis. The data from 20 patients (mean age 60, range 30-78 years; 80% females) were examined. In this group, 65% presented pulmonary disease defined as signs of interstitial lung disease according to thoracic imaging. Other clinical features were arthritis and new skin rashes, seen in 40% and 55% of the cases, respectively. Interestingly, 30% of the patients presented thromboembolic events and 25% pleural effusion.
The overall mortality was 25%. Six patients presented high anti-MDA titres (mortality in this group 33%, n=2), 3 patients had low titres whereas 11 patients had borderline anti-MDA positivity (mortality 27%, n=3). All deceased patients had involvement of the lungs and died due to multi organ failure. These patients were older (mean age 66, range 39-78; 60% female) and had more co-morbidities – 40% had cancer and 60% thromboembolic disease as compared to surviving patients, 7% and 20%, respectively. The disease progression in these cases was more rapid compared to survivors (mean time from first symptoms until diagnosis 2.4 months versus 8.1 months, respectively). The prevalence of anti-SSA52 was somewhat higher (60%) in the deceased group as compared to survivors (33%). None of the patients with high anti-MDA5 levels had history of smoking whereas 8 patients with borderline anti-MDA5, of which 3 of them deceased, were current or previous smokers.
Anti-MDA5 antibodies were repetitively measured in 7 patients and the titres become undetectable after therapy in 4 patients, whereas 3 of them survived.

Conclusion
The occurrence of anti-MDA5 antibodies, even if present at borderline titres, is associated with high rate of rapid pulmonary disease. These patients have increased mortality rate and should be investigated carefully. The decrease of anti-MDA5 antibody titres following treatment seems to be related to favourable outcome.

57 PRESENCE OF MYOSITIS-ASSOCIATED ANTIBODIES, ESPECIALLY SSA52, PREDICTS MORE SEVERE LUNG INVOLVEMENT IN PATIENTS WITH MYOSITIS – A STUDY OF 70 PATIENTS WITH INFLAMMATORY MYOPATHIES AT SAHLGRENSKA UNIVERSITY HOSPITAL

Kontaktinformation: Josefin Marklund, josefin.m.marklund@vgregion.se

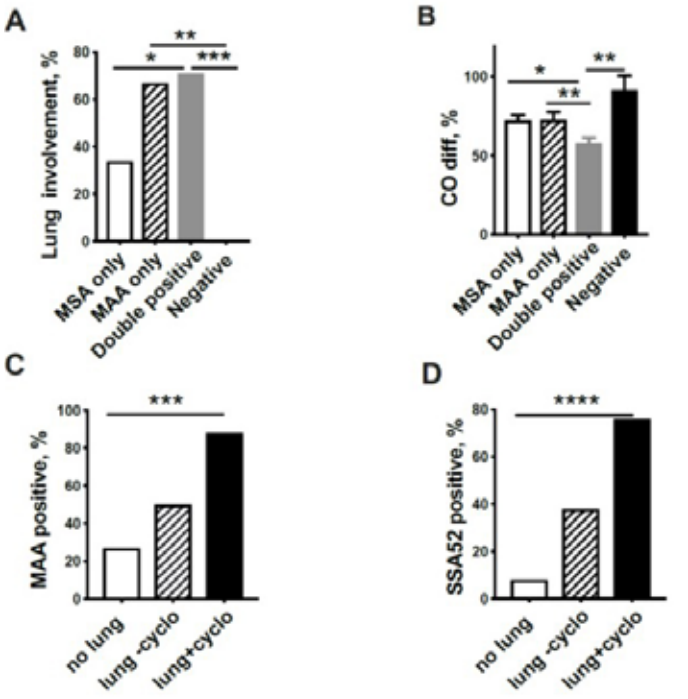
Josefin Marklund[1], Balsam Hanna[1,2], Tao Jin[1,2], Rille Pullerits[1,2,3]

[1] Department of Rheumatology, Sahlgrenska University Hospital
[2] Department of Rheumatology and Inflammation Research, Institute of Medicine, Sahlgrenska Academy at University of Gothenburg
[3] Department of Clinical Immunology and Transfusion Medicine, Sahlgrenska University Hospital, Gothenburg

Background
The idiopathic inflammatory myopathies (IIM) are a heterogeneous disease group which present big variation in the clinical features, antibody-profile, and responsiveness to the immunosuppressive treatment.

Objective
The aim of the study was to analyze the association between lung involvement and different myositis autoantibodies in IIM patients.

Methods
Patients with ICD diagnoses M33.1, M33.2, M33.9 or M609 who 1) had been tested with Euroline blot assay for myositis autoantibodies, and 2) met the classification criteria of definite/probable polymyositis (PM) or dermatomyositis (DM) (Bohan & Peter, 1975); anti-synthetase syndrome (ASS) (Connors, 2010) or Inclusion Body Myositis (IBM) (Griggs, 1995), were included. Medical journals were retrospectively examined with respect to clinical



atients (%) with lung involvement (Fig. A) and CO diffusion capacity in myositis atients (Fig. B) who had only myositis-specific antibodies (MSA only), only myo ssociated antibodies (MAA only) and both MSA and MAA (double positive) or n resence of myositis antibodies (negative). Proportion of patients (%) with MAA ositivity (Fig. C) and anti-SSA52 positivity (Fig.D) without lung involvement (nc ng), with mild lung involvement (lung -cyclo) or severe lung involvement in nee yclophosphamide treatment (lung +cyclo).
p <0.05, ** p <0.01, *** p <0.001, **** p <0.0001.

disease features. The auto-antibodies were categorized as MSA (against Jo-1, Mi-2α, Mi-2β, SRP, OJ, SAE, PL-7, PL-12, TIF1-gamma, MDA-5, NXP2) or MAA (against PM/Scl 75, PM/Scl 100, Ku, SSA52, SSA60, SSB, RNP). The lung involvement was defined as the presence of ground glass, fibrosis or the other changes consistent with ILD, UIP, NSIP and COP/BOOP according to radiological examination.

Results

Seventy patients (mean age 55.4 years; 66 % females) were included and represented the following diagnosis: PM (n=23), DM (n=21), ASS (n=23) and IBM (n=3). A majority of patients (87 %) presented a muscle biopsy positive for myositis. The presence of autoantibodies was as follows: MSA (n=53), MAA (n=33), both MSA+MAA (n=24), MSA only (n=29) and MAA only (n=9), no MSA or MAA (n=8). Anti-Jo-1 was the most common MSA (19%) whereas the most common MAA was SSA52 (31%). We observed significant differences according to antibody profile and lung disease. In our cohort, 47% of the patients in the whole study group, 86% of patients with anti-SSA52 and 100% with anti-Jo-1 had lung involvement. Patients with both MSA and MAA had higher incidence of lung disease (Fig. A) and decreased CO-diffusion capacity (Fig. B). The presence of any MAA was associated with significant increase of lung engagement, as well as more severe lung engagement, defined as the need for cyclophosphamide treatment (Fig. C). This was especially prominent if positive for anti-SSA52 (Fig. D). Interestingly, none of the patients suffered from lung disease if only antibodies against Mi-2α, Mi-2β, NXP2, HMGCR and TIF1-gamma were present or no MSA/MAA were detected.

Conclusion

The simultaneous presence of both MAA and MSA indicate increased risk of lung involvement in patients with inflammatory myopathies. The presence of any MAA, and especially SSA52, is associated with more severe pulmonary disease. Our data suggest that MAA antibodies might be relevant markers for early detection and treatment of lung involvement in IIM.

58 MYOSITIS-SPECIFIC AUTOANTIBODIES IN THE DIAGNOSIS OF IDIOPATHIC INFLAMMATORY MYOPATHIES AND THEIR RELATION TO THE CLINICAL PHENOTYPE OF THE DISEASE

Kontaktinformation: Josefin Marklund, josefin.m.marklund@vgregion.se

Josefin Marklund[1], Balsam Hanna[1,2], Tao Jin[1,2], Rille Pullerits[1,2,3]

[1] Department of Rheumatology, Sahlgrenska University Hospital
[2] Department of Rheumatology and Inflammation Research, Institute of Medicine, Sahlgrenska Academy at University of Gothenburg
[3] Department of Clinical Immunology and Transfusion Medicine, Sahlgrenska University Hospital, Gothenburg

Background

The myositis-specific autoantibodies (MSA) and myositis-associated antibodies (MAA) are clinically useful biomarkers for the diagnosis of idiopathic inflammatory myopathies (IIM). Many of these antibodies are associated with unique clinical subsets of IIM making them useful in predicting and monitoring certain clinical manifestations and to help to recognize new subsets of IIM.

Objective

The aim of this study was to assess the potential association between MSA/MAA and different clinical phenotypes and organ involvement in patients with well-defined cohort of IIM at the Rheumatology Clinic at Sahlgrenska University Hospital.

Methods

Inclusion criteria for this retrospective analysis were: 1) patients who had been tested for myositis autoantibodies with Euroline blot assay including following antigens: Jo-1, Mi-2α, Mi-2β, SRP, EJ, OJ, SAE, PL-7, PL-12, TIF1-gamma, MDA-5, NXP2, PM/Scl-75, PM/Scl-100, Ku. 2) patients who met the classification criteria of definite/probable polymyositis (PM) or dermatomyositis (DM) (Bohan & Peter, 1975); anti-synthetase syndrome (ASS) (Connors, 2010) or Inclusion Body Myositis (IBM) (Griggs, 1995). Anti-HMGCR and anti-cN1A was analysed if clinically indicated. The medical records of all patients were examined with respect to clinical disease features and organ involvement.

Results

Seventy patients (mean age at diagnosis 55 years, 66% females) met the inclusion criteria with confirmed muscle biopsy in 87% of them. The distribution of myositis antibodies among the patients was as follows: MSA in 75% of patients (n=53), MAA in 47% (n=33), both MSA/MAA in 34% (n=24) while 11% of patients (n=8) had no MSA/MAA. The IIM patients were classified to have following diagnoses: PM (n=23), DM (n=21), ASS (n=23) and IBM (n=3).
Cancer-associated myopathy (CAM), a subgroup of IIM, was identified in 13% of patients (n=9). The most prevalent was gynaecological cancer (44%) followed by breast cancer (22%). CAM patients had new skin-symptoms in 89% of cases and 8 of 9 had MSA: SRP (3), NXP2 (2), 1 Mi-2β (1), SAE (1) and PL-12 (1).
Immune-mediated necrotizing myopathy (IMNM) was diagnosed in 11 patients, 36% (n=4) had anti-HMGCR and 54% (n=6) anti-SRP antibodies. Anti-HMGCR positive myositis was associated with statin treatment in 75% of cases. None of the patients with IMNM had lung involvement. Of note, 55% in the whole IMNM group and 75% of anti-HMGCR positive patients had oesophagus involvement.
In patients with ASS, 91% had pulmonary involvement whereas anti-Jo-1 was most prevalent antibody in 56%, followed by anti-PL-7 in 37% and anti-PL-12 in 22% of cases. Interestingly, carpal tunnel syndrome (CTS) as diagnosed by nerve conduction study was significantly overrepresented in the ASS group (30%) as compared to other IIMs (10%). CTS were mainly associated with the presence of anti-synthetase antibodies (58%) or anti- Mi-2β (25%). Two of 3 IBM patients were positive for anti-cN1A antibodies.

Conclusion

Our data suggest that identification of MSA/MAA aids the clinical-serological classification of myositis and may help to understand the etiology, as well as predict the organ involvement of IIM.

59 OSTEOPOROSIS IN PATIENTS WITH IDIOPATHIC INFLAMMATORY MYOPATHIES

Kontaktinformation: Balsam Hanna, balsam.hanna@vgregion.se

Balsam Hanna[1, 2], Egidija Sakiniene[1, 2], Inger Gjertsson[1, 2], Rille Pulleritis[1, 2, 3], Tao Jin[1, 2]

[1] Department of Rheumatology and Inflammation Research, Institute of Medicine, Sahlgrenska Academy, University of Gothenburg, Gothenburg
[2] Department of Rheumatology, Sahlgrenska University Hospital, Gothenburg
[3] Department of Clinical Immunology and Transfusion Medicine, Sahlgrenska University Hospital, Gothenburg

Background
Osteoporosis is a systemic skeletal disease characterized by low bone mass resulting in increased risk for fractures. Patients with idiopathic inflammatory myositis (IIM) may have increased susceptibility to osteoporosis due to three major risk factors: chronic inflammatory response, immobilization and therapeutic approaches such as long-term medication with glucocorticoid.

Objective
We aimed to study the correlation between different disease related variables and bone mineral densities (BMD) in patients with IIM.

Methods
In a retrospective study, we evaluated all patients diagnosed with IIM between 2002 and 2018 with dual x-ray absorptiometry (DXA) within 2 years after diagnosis. T-scores from BMD measured by DXA and other disease related variables for all those patients were collected. To understand the bone metabolism at the different phases of disease, we compared the spinal and femoral BMD from 3 groups of patients: Group 1: Those who did DXA during 0-1 month after diagnosis; Group 2: Those who did DXA 2-6 months after diagnosis; Group 3: Those who did DXA 7-24 months after diagnosis.

Results
In total, 48 patients were included in the study. As expected, positive correlation was observed between BMD and body mass index ($p<0.001$). The presence of myositis specific autoantibodies (MSA) correlated positively with femoral BMD ($p<0.05$). Importantly, osteopenia (defined as T-score between -1 and -2,5 standard deviations) and osteoporosis (defined as T-score less than or equal to -2,5 standard deviations) were significantly more common in patients who did DXA at later time points of the disease compared to those who did DXA in the first month after diagnosis ($p<0.05$). For patients who did DXA at the very early time of the disease (n=8), only 2 patients had osteopenia (25%) and none had osteoporosis. Whereas in the patients who did DXA 2- 6 months after diagnosis (n=17), 7 patients had osteopenia (41%) and 2 had osteoporosis (12%). For patients who did DXA 6-24 months (n=23), 16 had osteopenia (70%) and 3 had osteoporosis (13%).

Conclusion
Presence of MSA is associated with higher BMD in patients with IIM. The process of osteopenia/osteoporosis might start at early phase of myositis (in 6 months) and osteoporosis prophylaxis at the early time is necessary.

60 MUSCLE FUNCTION AND HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH POLYMYOSITIS AND DERMATOMYOSITIS

Kontaktinformation: Kristofer Andreasson, kristofer.andreasson@sll.se

Kristofer M. Andreasson[1], Li Alemo Munters[2], Helene Alexanderson[1]

[1] Institutionen för Medicin, Karolinska Institutet, Solna
[2] Reumatikerförbundet, Stockholm

Bakgrund
Poly- and dermatomyositis (PM/DM) are idiopathic inflammatory muscle diseases characterized by reduced muscle function. Oral glucocorticoids and DMARD's are the usual treatment. In addition, physical exercise plays an important role in the treatment. Despite an often-beneficial effect of treatment, most patients are left with sustained muscle impairment and reduced quality of life. It is not known how muscle impairment differ between patients with newly onset PM/DM and patients with established PM/DM.

Syfte
The objective is to investigate muscle function in terms of maximal voluntary isometric strength (MVIC) and isometric muscular endurance (ME) in patients with newly onset and established PM/DM. A further objective is to investigate if there is a correlation between muscle function and health related quality of life (HRQoL).

Material & metod
Patients diagnosed with PM or DM (n=13) during September 2017 and February 2019 at Karolinska University hospital in Solna who met the inclusion criteria were asked to participate. Patients with established PM/DM (n=10) where identified through patient register at the same clinic, selected to match the patients with recent onset disease as to age and gender. To asses MVIC and ME, a dynamometer from Biodex was used. Three maximum, 4-second-contractions, with a three-minute rest in-between were performed followed by six sets of twelve submaximal contractions ranging from 20 % to 70 % of MVIC. The test ended with a new maximum repetition registered as percentage of MVIC. SF-36 was used to register HRQoL. Statistical significance was set to $p<0.05$, Mann-Whitney U-test was used to calculate group differences and Spearman's rho for correlations.

Resultat
Median age for patients with recent onset PM/DM was 43 (min–max 19–64) years and for established disease 45.5 (19–66) years. Diagnosis duration was 4 (1–6) months and 7.5 (3.8–36) years for the two groups, respectively. Patients with recent onset disease had a median MVIC of 84 (45–135) Nm and patients with established disease had 81 (41–167) Nm ($p=0.65$). ME were 83 (63–94) % and 90 (83–98) % for patients with recent onset disease and established PM/DM, respectively ($p=0.02$). A moderate correlation was found between MVIC and Physical Functioning ($rs=0.53$, CI=0.15–0.77). There were weak correlations between ME and Physical Role Functioning, General Health, Vitality and Emotional Role Functioning varying between ($rs=0.31$, CI=-0.12–0.64) and ($rs=0.37$, CI=-0.05–0.68). Other domains showed lower correlations.

Slutsats
A significant difference were found between the groups showing a reduced muscle endurance (ME) in patients with recent onset PM/DM. No significant difference was found regarding maximal voluntary isometric contraction (MVIC). A moderate correlation was found between MVIC and Physical Role Functioning. Other correlations were weak at best. Further research is needed with more patients to reach statistical power to confirm our results.

61 EXPERIENCE OF PAIN IN POLYMYOSITIS AND DERMATOMYOSITIS – A QUALITATIVE STUDY

Kontaktinformation: Helene Alexanderson, helene.alexanderson@sll.se

Helene Alexanderson[1, 2, 3], Masoumeh Tasarrofi[1], Malin Regardt[1, 2]

[1] FO Arbetsterapi och Fysioterapi, Karolinska Universitetssjukhuset, Stockholm
[2] Inst för NVS, Div. för Fysioterapi, Karolinska Institutet, Huddinge
[3] Inst. för Medicin, Solna, Div. för Reumatologi, KI

Background
Studies indicate that adults with polymyositis (PM) and dermatomyositis (DM) have higher self-reported pain compared to general population assessed by the SF-36 domain, Bodily pain (BP). International focus groups and online surveys indicate that pain is an important symptom in PM/DM (1). Knowledge about pain in myositis is very limited.

Objective
To explore experience of pain in adult patients with PM and DM by a qualitative approach.

Material and methods
Patients with adult PM/DM were strategically identified to represent both men and women, various ages, self-reported pain, diagnosis duration, and disease activity. Inclusion criteria; age > 18 years, VAS pain >10 mm during the last two years. Exclusion criteria; diagnosis of fibromyalgia / other wide-spread pain diagnosis or other inflammatory rheumatic disease. Individual interviews using a semi-structured interview guide were conducted during April-June 2018. All patients completed the SF-36 survey after the interview. Interviews were audiotaped and transcribed verbatim. Qualitative content analysis (2) was used; Analysis was performed by two researchers separately followed by a consensus discussion. The study was approved by the Regional Ethical Review Board, Stockholm and all patients signed informed consents.

Results
Six patients were included; female n= 4, PM n=4, median (range) age 44.5 (28-71), diagnosis duration 5 (1-22) years, physician global VAS 15 (0-40) mm, pain VAS 66 (30-84) mm. pain measured by SF-36 BP was 31.5 significantly worse when compared to population-based reference value ($p<0.01$). Three over-arching themes, 11 categories and 21 subcategories were identified. Theme 1: PAIN IS FLUCTUATING AND CHRONIC – category Factors increasing the pain (subcategories over exertion, tapering of corticosteroids, cold climate). Factors reducing pain (warm climate, medication/adapted exercise, Self-management). Localization (pain in muscles and joints), Pain was first symptom of myositis, characterization (constant pain). Thoughts about pain (Myositis causes pain, pain is a subjective symptom and fatigue have worse life-impact than pain). Theme 2: INFORMATION ABOUT PAIN IS ESSENTIAL - Information from health-care providers (HCP) (inadequate and wrong information and HCP don't care about how pain impacts sex-life). Theme 3: PAIN INFLUENCES MANY ASPECTS OF QUALITY OF LIFE. Social life, Emotions, Pain impact on daily activities and pain impact on sleep.

Conclusion
Pain seems to be a myositis symptom affecting many aspects of life. Pain could be the first symptom of myositis, could initially be reduced by corticosteroids but worsens with tapering of medication and remain as a chronic symptom worsening over time. HCP need to ask about pain, measure pain and give correct information about myositis-related pain.

References
1) Regardt M et al. J Rheumatol 2015;42:2492-5. 2) Granheim UH et al. Nurse Ed Today 2004;24:105-112.

62 PREDICTORS OF LOW DISEASE ACTIVITY AND CLINICAL REMISSION FOLLOWING BELIMUMAB TREATMENT IN SYSTEMIC LUPUS ERYTHEMATOSUS

Kontaktinformation: Ioannis Parodis, ioannis.parodis@ki.se

Ioannis Parodis[1], Petter Johansson[1], Alvaro Gomez[1], Sofia Soukka[1], Sharzad Emamikia[1], Katerina Chatzidionysiou[1]

[1] Division of Rheumatology, Department of Medicine, Karolinska Institutet, Stockholm

Background
Post-hoc analyses of the pivotal phase III clinical trials of belimumab BLISS-52 and BLISS-76 have revealed superiority of belimumab over placebo in patients with systemic lupus erythematsus (SLE) and high baseline disease activity, positive anti-double stranded (ds)DNA titres and low complement levels, as well as in patients receiving corticosteroids (1). Later, real-life observations demonstrated that established organ damage prior to treatment initiation predicted reduced belimumab efficacy based on the SLE Responder Index 4 (SRI-4) (2), which was recently corroborated in a post-hoc analysis of data from the BLISS trials (3). From a clinical point of view, clinical remission and low disease activity are more meaningful targets than reduced SLE activity (SRI-4).

Objectives
To identify predictors of low disease activity and clinical remission following belimumab treatment in patients with SLE.

Methods
Patients with SLE who received belimumab 10 mg/kg (N = 563) in the BLISS-52 and BLISS-76 clinical trials were surveyed. Access to data was granted by GlaxoSmithKline. The performance of baseline factors in predicting attainment of low disease activity defined as Lupus Low Disease Activity State (LLDAS) (4) or clinical remission defined as zero score in the clinical version of the SLE Disease Activity Index 2000 (cSLEDAI-2K = 0) at week 52 from treatment initiation was evaluated using logistic regression. Organ damage was assessed using the Systemic Lupus International Collaborating Clinics (SLICC)/American College of Rheumatology (ACR) Damage Index (SDI).

Results
We demonstrated a negative impact of established organ damage on attainment of LLDAS (SDI > 0; OR: 0.44; 95% CI: 0.22–0.90; P = 0.024) and the primary LLDAS condition, i.e. SLEDAI-2K ≤ 4 with no renal activity, pleurisy, pericarditis or fever (SDI > 1; OR: 0.46; 95% CI: 0.27–0.77; P = 0.004); cognitive impairment/psychosis was found to mainly account for the latter association. Baseline SDI scores > 1 predicted failure to attain cSLEDAI-2K=0 (OR: 0.53; 95% CI: 0.30–0.94; P = 0.030), with cutaneous damage mainly driving this association. Anti-dsDNA positivity increased (OR: 1.82; 95% CI: 1.08–3.06; P = 0.025) and cardiovascular damage reduced (OR: 0.13; 95% CI: 0.02–0.97; P = 0.047) the probability to attain cSLEDAI-2K = 0 with the daily prednisone equivalent intake restricted to ≤ 7.5 mg.

Conclusions
Belimumab might be expected to be more efficacious in inducing low disease activity and clinical remission in SLE patients with limited or no organ damage accrued prior to treatment initiation. Patients with positive anti-dsDNA titres might be more likely to achieve clinical remission along with limited or no corticosteroid use. The findings contribute to a better selection of SLE patients expected to benefit from belimumab, and provide useful information towards refinement of SLE treatment recommendations.

References
1. van Vollenhoven RF, Petri MA, Cervera R, et al. Ann Rheum Dis 2012.
2. Parodis I, Sjowall C, Jonsen A, et al. Autoimmun Rev 2017.
3. Parodis I, Gomez A, Emamikia S, et al. Ann Rheum Dis 2019.
4. Franklyn K, Lau CS, Navarra SV, et al. Ann Rheum Dis 2016.

63 A SIMPLIFIED APPROACH FOR PATIENTS WITH SLE TO REPORT DISEASE ACTIVITY USING A REVISED VERSION OF THE SWEDISH SYSTEMIC LUPUS ACTIVITY QUESTIONNAIRE

Kontaktinformation: Susanne Pettersson, susanne.pettersson@sll.se

Susanne Pettersson[1], Vera Illescas-Bäckelin[2], Andreas Jönsen[3], Iva Gunnarsson[4], Estelle Trysberg[5], Dag Leonard[6], Christopher Sjöwall[7], Elisabet Svenungsson[4]

[1] PO Gastro-hud-REUMA, Tema Inflammation och Infektion, Karolinska Universitetssjukhuset, Stockholm
[2] Rheumatology Unit, Department of Medicine, Karolinska Institutet, Karolinska University Hospital, Stockholm
[3] Department of Clinical Sciences Lund, Rheumatology, Lund University, Lund
[4] Rheumatology Unit, Department of Medicine, Solna, Karolinska Institutet, Karolinska University Hospital, Stockholm
[5] Department of Rheumatology, Sahlgrenska University Hospital, Göteborg
[6] Department of Medical Sciences, Science for Life Laboratory, Rheumatology, Uppsala University, Uppsala
[7] Rheumatology/Division of Neuro and Inflammation Sciences, Department of Clinical and Experimental Medicine, Linköping University, Linköping

Background
The Systemic Lupus Activity Questionnaire (SLAQ) is a validated questionnaire, which captures patients' assessments of SLE-related symptoms and disease activity (1). However, it is extensive and in a recent study we found that some questions were difficult to answer, added little information, or had poor correlation with physicians' assessments (2). Thus, herein we revised the Swedish version of the questionnaire (SWE-SLAQr), building on previous results and we also asked patients for input. Our aim was to get an improved and shorter version, to support clinical work and online registries.

Objectives
We compared patients' assessments of SLE disease activity, as reported in the SWE-SLAQr, with physicians' assessments using SLE activity measure (SLAM) and SLE disease activity index (SLEDAI-2K).

Materials and methods
Patients (n=101), median age 43 (IQR 22) years, disease duration 14 (IQR 15) years filled out SWE-SLAQr prior to physicians' assessments. Correlations (Spearman's ρ) between SWE-SLAQr-total, sub-scales (Symptom score, Patients global) and physicians SLAM, SLEDAI-2K with and excluding the laboratory items (SLAM-nolab and SLEDAI-nolab). Symptom presence on corresponding items in SLAQ and SLAM, were compared and explored.

Results
Correlations between patients' and physicians' assessments were higher for SLAM-nolab: SWE-SLAQr total, ρ=0.685, Symptom score, ρ=0.670, and Patients global, ρ=0.667 than for SLAM: SWE-SLAQr total, ρ=0.488, Symptom score, ρ=0.467, and Patients global, ρ=0.501. Of symptom items fatigue (ρ=0.740), alopecia (ρ=0.695) and weight loss (0.517) showed highest degree of correlation. Notably, symptoms of dyspnea/pleuritic chest pain had no correlation between patients' and physicians´ assessments (ρ=0.152, p=0.130). Correlations with SLEDAI-nolab were lower for SWE-SLAQr total (ρ=0.253), Symptom score (ρ=0.265), and Patients global (ρ=0.334). No correlations were found between patients' and physicians' assessments when using SLEDAI-2K (ρ<0.09 for all).

Conclusions
We conclude that SWE-SLAQr performed equally well as SLAQ, demonstrating that the shorter version can be used to monitor disease impact. We encourage further use of SWE-SLAQr and recommend its implementation in clinical care, we believe it is especially well suited to support digital and telephone contacts. However further attention is needed to evaluate the discrepancy between physicians' and patients' evaluation of thoracic pain/symptoms.

References
1.Karlson EW et al. Validation of a Systemic Lupus Activity Questionnaire (SLAQ) for population studies. Lupus. 2003.
2.Pettersson S, et al. A comparison of patients' and physicians' assessments of disease activity using the Swedish version of the Systemic Lupus Activity Questionnaire. Scand J Rheumatol. 2017.

64 EPIGENOME-WIDE ASSOCIATION STUDY REVEALS DIFFERENTIAL DNA METHYLATION IN SYSTEMIC LUPUS ERYTHEMATOSUS PATIENTS WITH A HISTORY OF ISCHEMIC HEART DISEASE

Kontaktinformation: Dag Leonard, dag.leonard@medsci.uu.se

Juliana Imgenberg-Kreuz[1], Martina Frodlund[2], Christopher Sjövall2, Iva Gunnarsson[3], Elisabet Svenungsson[3], Dag Leonard[1]

[1] Department of Medical Sciences, Section of Rheumatology and Science for Life Laboratory, Uppsala University, Uppsala
[2] Department of Clinical and Experimental Medicine, Rheumatology/Division of Neuro and Inflammation Sciences, Linköping University, Linköping
[3] Department of Medicine Solna, Rheumatology Unit, Karolinska Institutet, Karolinska University Hospital, Stockholm

Background
Patients with SLE have an increased risk of cardiovascular disease (CVD), including ischemic heart disese (IHD). Differential DNA methylation with distinct hypomethylation at interferon (IFN) regulated genes has been observed in SLE. Altered methylation patterns have also been observed in IHD in the general population.

Objectives
We performed a case-case epigenome-wide association study (EWAS) for ischemic heart disease (IHD) in patients with systemic lupus erythematosus (SLE) to identify phenotype-specific differences in DNA methylation.

Methods
DNA methylation in peripheral blood samples from two independent cohorts of Swedish SLE patients (n=347 (Linköping and Uppsala) and n=201 (Stockholm), respectively) was assayed on the HumanMethylation450k BeadChip array, targeting 485,000 CpG sites across the genome. Clinical data were retrieved from medical charts and individuals with a history of CVD were identified in both cohorts. All patients fulfilled 4 ACR-82 criteria. Differential DNA methylation between SLE patients with a history of IHD (myocardial infarction and/or angina pectoris, n=20 and n=17, respectively) and SLE patients without any CVD events prior to DNA sampling was tested using a logistic regression model including age, sex and cell type distribution as covariates. Differentially methylated CpG sites in the discovery cohort were defined as p0.05. Significance in the replication cohort was determined as p<0.05 and same direction of effect.

Results
The top associated differentially methylated CpG sites in the discovery cohort were identified at programmed cell death 1 (PDCD1, p=3.2×10-13), perforin 1 (PRF1, p=1×10-12) and ZFP36 ring finger protein like 1 (ZFP36L1, p=6.3×10-12), all of which are implica-

ted in apoptotic processes. Functional pathway analysis of genes containing sites with altered methylation in SLE IHD pointed to muscle contraction (p=4.3×10-10), cardiac conduction (p=2.2×10-7) and role of agrin in postsynaptic differentiation (p=2.9×10-7) as the most significantly enriched pathways.

Conclusions
The results of this study highlight genes and pathways that may be implicated in the pathogenesis of and/or recovery from IHD in patients with SLE. The differentially methylated CpG sites identified in this study can serve as candidates for further evaluation by functional studies and as potential biomarkers for IHD in patients with SLE.

65 SHARED AND UNIQUE PATTERNS OF DNA METHYLATION IN SYSTEMIC LUPUS ERYTHEMATOSUS AND PRIMARY SJÖGREN'S SYNDROME

Kontaktinformation: Juliana Imgenberg-Kreuz, juliana.imgenberg@medsci.uu.se

Juliana Imgenberg-Kreuz[1], Jonas Carlsson Almlöf[2], Dag Leonard[1], Christopher Sjöwall[3], Ann-Christine Syvänen[2], Lars Rönnblom[1], Johanna K. Sandling[1], Gunnel Nordmark[1]

[1] Department of Medical Sciences, Section of Rheumatology and Science for Life Laboratory, Uppsala University, Uppsala
[2] Department of Medical Sciences, Molecular Medicine and Science for Life Laboratory, Uppsala University, Uppsala
[3] Department of Clinical and Experimental Medicine, Rheumatology/Division of Neuro and Inflammation Sciences, Linköping University, Linköping

Background
Systemic lupus erythematosus (sle) and primary sjögren's syndrome (pss) are two clinically and immunologically related chronic inflammatory autoimmune diseases with a multifactorial etiology. In recent studies, increasing evidence has been assigned to the contributing role of epigenetic mechanisms in initiation and progression of systemic autoimmune diseases.

Objectives
To perform a cross-comparative analysis of dna methylation in patients with sle, patients pss and healthy controls addressing the question of epigenetic sharing and aiming to detect disease-specific alterations.

Methods
Dna extracted from peripheral blood from 347 cases with sle, 100 cases with pss and 400 healthy controls were analysed on the humanmethylation 450k array, targeting 485,000 cpg sites across the genome. A linear regression model including age, sex and blood cell type distribution as covariates was fitted, and association p-values were bonferroni corrected. A random forest machine learning classifier was designed for prediction of disease status based on dna methylation data.

Results
We established a combined set of 4,945 shared differentially methylated cpg sites (dmcs) in sle and pss compared to controls. In pss, hypomethylation at type i interferon induced genes was mainly driven by patients who were positive for ro/ssa and/or la/ssb autoantibodies. Analysis of differential methylation between sle and pss identified 2,244 dmcs with a majority of sites showing decreased methylation in sle compared to pss. The random forest classifier demonstrated good performance in discerning between disease status with an area under the curve (auc) between 0.83 And 0.96.

Conclusions
The majority of differential dna methylation is shared between sle and pss, however, important quantitative differences exist. Our data highlights neutrophil dysregulation as a shared mechanism, emphasizing the role of neutrophils in the pathogenesis of systemic autoimmune diseases. The current study provides evidence for genes and molecular pathways driving common and disease-specific pathogenic mechanisms.

66 GENETIC REGULATION OF THE INTERFERON SYSTEM

Kontaktinformation: Christian Lundtoft, christian.lundtoft@medsci.uu.se

Christian Lundtoft[1], Pascal Pucholt[1], Juliana Imgenberg-Kreuz[1], Jonas Carlsson Almlöf[2], Gunnel Nordmark[1], Johanna K. Sandling[1], Ann-Christine Syvänen[2], Lars Rönnblom[1], Niklas Hagberg[1]
[1] Department of Medical Sciences, Rheumatology and Science for Life Laboratories, Uppsala University, Uppsala
[2] Department of Medical Sciences, Molecular Medicine and Science for Life Laboratory, Uppsala University, Uppsala

Background
Interferon(IFN)-α and IFN-γ are important cytokines in the pathogenesis of systemic lupus erythematosus (SLE). Several of the genetic associations with SLE are found in genes that are fundamental for the IFN response (e.g. TYK2, STAT4, IRF5), but a direct functional effect on the IFN signalling has so far not been demonstrated.

Aim
This study aimed to define the genetic regulation of the IFN system and to link disease-associated SNPs to alterations in the IFN system.

Methods
Peripheral blood mononuclear cells from 303 healthy individuals were stimulated with IFN-α or IFN-γ. Basal levels of IFN-receptors (IFNAR2 and IFNGR1) and IFN-induced phosphorylation of STAT1 (pSTAT1) and STAT4 (pSTAT4), expression of CXCL9, CXCL10, HLA-ABC and HLA-DRPQ was determined in monocytes, B, CD4+ T, CD8+ T, CD56dim NK and CD56bright NK cells using flow cytometry. Each read-out was mapped as a protein-Quantitative Trait Loci (pQTL) using 3.4 million SNPs with a minor allele frequency ≥5% (Illumina Global Screening Array-Multiple Diseases with subsequent genome-wide imputation) in an additive model correcting for experiment batch, sex, age, CMV-status and season of blood sampling. pQTLs were probed for overlap with disease-associated SNPs in the GWAS catalogue, as well as data on allele-specific RNA expression and methylation levels in B cells from ~40 healthy individuals.

Results
9 genome-wide significant pQTLs (p<5.0E-8) were identified, 3 of which were associated with basal levels of IFN receptor expression, 4 with IFN-α, and 2 with IFN-γ-induced traits. One pQTL affected protein expression in cis (IFNAR2), whereas the other 8 were trans-pQTLs. The strongest association-signal was observed for a SNP in HLA-A, previously associated with IgE levels in blood, that affected IFNAR2 expression in B cells (p=1.4E-25), CD8+ T cells (7.8E-12) and CD4+ T cells (p=1.4E-9). Carriers of the minor allele displayed decreased methylation (p=2.4E-17) and allele-specific expression (p=6.6E-6) of the neighbouring gene RNF39 in B cells.
A pQTL for IFNGR1 expression in monocytes (rs1801274 in FCGR2A; p=2.7E-23), and a suggestive significant pQTL (p<5.0E-5) for IFN-γ-induced pSTAT1 in monocytes (rs912784 in LRRC63),

were previously reported SLE susceptibility SNPs. Notably, none of the SNPs in TYK2, STAT4 or IRF5 reached the suggestive significant levels for any of the IFN-response parameters studied.

Conclusions
We demonstrate a cell-type and stimuli-specific genetic regulation of the IFN system. Two SNPs previously linked to SLE were associated with alterations in the IFN-α receptor expression or response in monocytes. Further studies to determine the underlying mechanisms of these associations are ongoing.

67 THE REGULATION AND PHARMACOLOGICAL MODULATION OF IMMUNE COMPLEX INDUCED PRODUCTION OF TYPE III IFN BY PLASMACYTOID DENDRITIC CELLS

Kontaktinformation: Karin Hjorton, karin.hjorton@medsci.uu.se

Karin Hjorton[1], Niklas Hagberg[1], Olof Berggren[1], Maija-Leena Eloranta[1], Lars Rönnblom[1]

[1] Reumatologkliniken Akademiska Sjukhuset Uppsala /Inst Med Vetenskaper, UU, Uppsala Universitet, Uppsala

Background
The type I Interferons (IFNs) are the most important drivers of the IFN gene signature in Systemic Lupus Erythematosus (SLE). However, both type II and type III IFNs (IFN-λ1-3) can be measured in a proportion of patients with SLE and contribute to the IFN signature. The exact role of type III IFNs in SLE is not completely clear, but serum levels of type III IFN correlate with disease activity and specific organ manifestations, such as arthritis, nephritis and anti-dsDNA antibodies.
Type III IFN can be induced in pDCs by TLR9 agonist Oligodinucleotide (ODN) 2216 and many viruses. Whether type III IFN can also be induced in pDCs by nucleic acid containing immune complexes (IC), has, to our knowledge, not been investigated before.

Objective
We asked if RNA containing immune complexes (RNA-IC), which trigger the synthesis of large amounts of IFN-α by plasmacytoid dendritic cells (pDCs), can act as stimuli for type III IFN production, and how this production is regulated by Natural Killer (NK) cells and different cytokines. We also investigated if the type III IFN production could be blocked by hydroxychloroquine (HCQ) and an interleukin receptor 1 associated kinase 4 inhibitor (IRAK4i).

Methods
Peripheral blood mononuclear cells (PBMCs) from SLE patients or healthy individuals were used to isolate PDCs and natural killer (NK) cells, or were depleted of monocytes. Cells were stimulated with RNA-IC, and cytokines were measured by immunoassays. mRNA expression in RNA-IC stimulated pDCs and NK cells cells was analyzed with a microarray. The effect of HCQ and IRAK4i on the IFN-λ1/3 production was investigated in pDCs and NK cells from healthy individuals.

Results
Type III IFN mRNA expression was strongly upregulated in co-cultures of pDC-NK cells stimulated with RNA-IC. High levels of IFN-λ1/3 and IFN-λ2 (medians 2000 pg/ml and 100 pg/ml) were detected in supernatants from RNA-IC stimulated pDC-NK cell co-cultures. IFN-λ2 enhanced IFN-λ1/3 and IFN-α production by purified pDCs. Interleukin (IL) -3, IL-6, and GM-CSF significantly enhanced IFN-λ1/3 production (4-5 fold) by RNA-IC stimulated pDCs. Monocyte depleted PBMCs and pDC-NK cell co-cultures from 15% and 9% of SLE patients produced IFN-λ1/3 in response to RNA-IC stimulation. Exogenous IFN-α2b and GM-CSF in pDC-NK cell co-cultures increased the proportion of patients responding to RNA-IC stimulation from 9 to 36%. IFN-λ1/3 production by RNA-IC-stimulated pDCs and pDC-NK cells was significantly inhibited by HCQ (by 99% and 93% respectively) and an IRAK4i (by 98% and 96% respectively).

Conclusions
pDCs produce both type I and type III IFN in response to RNA containing immune complexes. This is promoted by activated NK cells as well as a number of pro-inflammatory cytokines, including IFN type I and type III, considered important in SLE. Consequently, in order to achieve a proper control the IFN driven autoimmune process in SLE, both type I and type III IFN need to be targeted. In this system of stimulated, co-cultivated pDCs and NK cells, HCQ and an IRAK4 inhibitor blocked the type III IFN production.

68 INVESTIGATION OF SLE SUBGROUPS FOR TARGETED THERAPY: A PROTEOMICS STUDY

Kontaktinformation: Helena Idborg, helena.idborg@ki.se

Helena Idborg[1], Elisabet Svenungsson[2], Per-Johan Jakobsson[2]

[1] Institutionen för Medicin Solna, Karolinska Institutet, Solna
[2] Rheumatologi, Karolinska Institutet/Karolinska Universitetssjukhuset, Stockholm

Objective
Systemic Lupus Erythematosus (SLE) is a heterogeneous autoimmune disease. This heterogeneity might result in differences in response to treatment in different subgroups and obstructs clinical trials. Our aim was to investigate possible SLE subgroups evident in the clinic for better understanding of underlying pathophysiology, as well as suggesting novel subgroups based on protein profiles.

Method
Plasma samples from a cross-sectional study of well-characterized SLE patients (n=379) and matched population controls (n=316) were analyzed by antibody suspension bead array targeting 281 proteins. In a hypothesis-driven approach we selected a core of an antiphospholipid syndrome-like SLE (aPL+ group; positive in the lupus anticoagulant (LA) test and negative for all three of SSA (Ro52 and Ro60) and SSB antibodies) and a Sjögren's syndrome-like SLE (SSA/SSB+ group; positive for all three of SSA (Ro52 and Ro60) and SSB antibodies but negative in the LA test). In a data-driven approach we performed K-means clustering on the proteomic data to identify molecular SLE subgroups. We utilized well-established clinical biomarkers and complementary immunoassays to explore the difference between the two predefined SLE subgroups as well as characterize the identified molecular subgroups.

Results
The aPL+ subgroup (n=66) was characterized by pronounced complement activation and increase in markers of systemic inflammation (fibrinogen, α-1 antitrypsin, neutrophils, and triglycerides). The SSA/SSB+ group (n=63) showed high levels of rheumatoid factor, immunoglobulin G, intergrin sugunit beta 1 (ITGB1), solute carrier family 13 member 3, and ceramide synthase 5 (CERS5). The latter subgroup was associated with possible activation of the interferon system as measured by high KRT7, TYK2, and ETV7 in plasma. Unsupervised clustering of all investigated proteins identified three molecular subgroups among SLE patients, characterized by 1) high levels of rheumatoid factor-IgM, 2) low IRF5, and 3) high IRF5. The first molecular subgroup share characteristics with the SSA/SSB+ subgroup, e.g., increased levels of ITGB1 and CERS5, and was associated with higher levels of SSA/SSB antibodies.

Conclusions
The SSA/SSB+ subgroup appears as a prominent subgroup, evident in the clinic as well as suggested as a major molecular subgroup in an unsupervised approach. The differences between subgroups may reflect differences in underlying pathogenesis suggesting that subgroups may benefit from different treatments. Stratifying SLE patients based on an autoantibody profile or protein profile could be a way forward to understand underlying pathophysiology and to improve selection of patients for clinical trials of targeted treatments.

References
(1) Idborg H, Zandian A, Sandberg A-S, Nilsson B, Elvin K, Truedsson L, Sohrabian A, Rönnelid J, Mo J, Grosso G, Kvarnström M, Gunnarsson I, Lehtiö J, Nilsson P, Svenungsson E, Jakobsson P-J. Two subgroups in systemic lupus erythematosus with features of antiphospholipid or Sjögren's syndrome differ in molecular signatures and treatment perspectives. Arthritis Research & Therapy. 2019;21(1):62.

(2) Helena Idborg, Arash Zandian, Elena Ossipova, Edvard Wigren, Charlotta Preger, Fariborz Mobarrez, Antonio Checa, Azita Sohrabian, Pascal Pucholt, Johanna K. Sandling, Cátia Fernandes-Cerqueira, Johan Rönnelid, Vilija Oke, Giorgia Grosso, Marika Kvarnström, Anders Larsson, Craig E. Wheelock, Ann-Christine Syvänen, Lars Rönnblom, Kim Kultima, Helena Persson, Susanne Gräslund, Iva Gunnarsson, Peter Nilsson, Elisabet Svenungsson and Per-Johan Jakobsson. Circulating levels of Interferon Regulatory Factor-5 associates to subgroups of Systemic Lupus Erythematosus patients. Accepted for publication in Frontiers of Immunology 2019. doi: 10.3389/fimmu.2019.01029

69 COMBINED DATA DRIVEN COMPUTATIONAL TOOL AND B CELL MATURATION ASSAY FOR NEW TARGET IDENTIFICATION IN SYSTEMIC LUPUS ERYTHEMATOSUS

Kontaktinformation: Mingmei Shang; mingmei.shang@ki.se

Ming-Mei Shang1,3, Bogdan Knezevic2, Hai Fang2, Christine Möller1,3, Sudeepta Kumar Panda1,3, Yvonne Sundström1,3, Per-Johan Jakobsson1, Michael Sundström1,3, Julian C. Knight2, Louise Berg1,3.
1Structural Genomics Consortium, Department of Medicine, Karolinska University Hospital and Karolinska Institutet, Stockholm, Sweden
2Wellcome Centre for Human Genetics, University of Oxford, Oxford, UK
3Division of Rheumatology, Department of Medicine, Solna, Karolinska University Hospital and Karolinska Institutet, Stockholm, Sweden

Background
Systemic lupus erythematosus (SLE) is an autoimmune disease involving multiple organs and displaying various clinical symptoms. Despite the improvement of long-term prognosis in past decades, specific disease targeted therapies are still needed partly due to the disease heterogeneity.

Aim
We aim to identify new treatment targets by combining a newly developed computational tool for druggable target selection in SLE and validating these in a B cell maturation assay. The validation is performed by siRNA knockdown of target genes. Genes found to be important in in vitro induced B cell maturation will be studier further.

Methods
We first selected the top 1% genes (150 genes) ranked by Priority Index (Pi), a computational tool that integrates genomic and network information to prioritize disease-relevant genes (Fang et al, Nature Genetics, in press). Second, we narrowed the target list further by applying the following filters: (i) identifying network cross-talk genes involved in multiple disease-relevant pathways; (ii) identifying gene targets with druggable pockets based on the fpocket algorithm; (iii) identifying genes that were highly ranked in other immune/inflammatory disease outputs similar to SLE; and (iv) identifying genes that did not interfere with the B cell stimulation cocktail, which consist of soluble CD40L, IL-4, IL-10, IL-21 and CpG OND2006. Accordingly, we selected 11 genes to validate experimentally: IFNGR1, IL-2, IRF4, IL-12A, IL-12B, VCAM1, ATF6B, RELA, IKBKG, CHUK, MAPK14. Control genes were STAT1, STAT3, GAPDH, PPIB. In brief, PBMCs from healthy donors were transfected with siRNA targeting genes of interest (GOI) or control genes. Transfected PBMCs were cultured in presence or absence of the stimulation cocktail. Transfection efficiencies and cell viability status were measured by flow cytometry post transfection. Knock down efficiencies of both GOI and control genes were determined by RT-qPCR at day 3 post transfection. B cells phenotype was analyzed by flow cytometry with different cell surface markers (CD19, CD27, CD38, IgG, IgD) and viability dye at day 6 post transfection. Supernatant from both day 3 and day 6 were collected to measure IgG secretion by ELISA. In addition, cell viability at day 6 was measured by CellTiter-Glo Luminescent Cell Viability Assay.

Results
Our preliminary results revealed knock down efficiencies ranging from 21% to 67%, depending on gene. We find that knock down of IFNGR1 decrease the IgG production at day 3, while no effects was detectable in B cell maturation parameters. siRNA targeting RELA reduced IgG secretion at day 3 and day 6 and also reduced induced B cell maturation as analyzed on day 6.

Future plan
We are planning to investigate the role of these genes in PBMCs from SLE patients using the same approach, dissect further the gene network alterations by manipulating those genes in both healthy donors and SLE patients PBMC.

70 DECREASED PLATELET SIZE IN SYSTEMIC LUPUS ERYTHEMATOSUS: UP-REGULATION OF TYPE I INTERFERON PROTEINS

Kontaktinformation: Lina Wirestam, lina.wirestam@med.lu.se

Lina Wirestam[1], Petrus Linge[1], Sabine Arve1, Robin Kahn[2], Andreas Jönsen[1], Anders Bengtsson[1]

[1] Reumatologi, Institutionen för Kliniska Vetenskaper, Lunds Universitet, Lund

[2] Pediatrik, Institutionen för Kliniska Vetenskaper, Lunds Universitet, Lund

Background
Systemic lupus erythematosus (SLE) pathogenesis is characterized by increased apoptosis rates in combination with impaired clearance. This may promote development of autoantibodies against nucleic acids, immune complex formation and increased levels of type I interferons. Inability to control this cause inflammation and may lead to irreversible organ damage. Previous studies by our group have shown that platelets from SLE patients are activated and smaller in size, compared to normal platelets, but the underlying mechanism is unknown. Platelets may undergo apoptosis and thereby decrease in size, potentially participating in disease promoting events, but this has not been investigated. Therefore, our aim with this project was to investigate why platelets in SLE patients have a decreased size and if this could be explained by increased apoptosis.

Materials & methods
23 SLE patients and 10 healthy controls (HC) were analyzed for markers of platelet activation; CD62P, CD41, CD154, CD32, PAC-1 and PAR1 and apoptosis; Annexin V, Caspase 3 activation, mitochondrial content (MitoTracker) and mitochondrial depolarization (JC-1) by flow cytometry. Additional identification of potential differences between platelets of different size from SLE patients were made using mass spectrometry (MS). Platelets from five patients with the lowest and five with the highest forward scatter (FSC) were selected. Low FSC SLE platelets differed significantly from HC platelets regarding FSC, while high FSC SLE platelets were equal. Statistical analysis of MS data was performed using the Proteome Discoverer™ Software.

Results
The percentage of platelets positive for CD41 (p=0.001) and mean expression of CD154 (p=0.004) were higher in SLE patients, while the percentage of Caspase-3 positive platelets (p=0.0016) and level of PAR1 (0.0004) expression were higher in healthy controls, but both Caspase-3 and CD154 were close to detection limit. We also found a significantly different JC-1 ratio (p=0.0001), indicting increased mitochondrial depolarization in patient platelets. None of the other markers differed significantly. MS analysis revealed 32 proteins with ≥ 1.5-fold difference and a p-value of less than 0.05 (Abundance Ratio Adjusted). Proteins, including STAT1, ISG15, NMI and TRIM25 were among 19 expressed at higher levels in small platelets and unbiased enrichments analyses showed a significant overrepresentation of proteins involved in biological processes related to type I interferon signaling. Up-regulated proteins in normal sized platelets included IGHM, IGHA1 and IGHG2, associated with biological processes such as immune complex binding, phagocytosis and complement activation.

Conclusions
We did not find significant signs of increased platelet activation in platelets from SLE patients vs HC. Mitochondrial depolarization was increased in SLE platelets, but this finding alone does not offer conclusive evidence for increased platelet apoptosis. However, platelets with decreased size from SLE patients showed an up-regulation of type I interferon related proteins, suggesting either direct influence of IFN, but more likely an effect of IFN acting on megakaryocytes in the bone marrow. Further studies will be conducted to evaluate the effect of type I interferons on megakaryocytes and platelets in vitro.

71 A NCF1 POLYMORPHISM DECREASING NEUTROPHIL PRODUCTION OF REACTIVE OXYGEN SPECIES AND NETS IS ASSOCIATED WITH HIGH SERUM IFN ACTIVITY AND ANTIPHOSPHOLIPID SYNDROME IN SYSTEMIC LUPUS ERYTHEMATOSUS

Kontaktinformation: Petrus Linge, petrus.linge@med.lu.se

*Petrus Linge[1], *Sabine Arve[1], Lina Olsson[2], Dag Leonard[3], Christopher Sjöwall[4], Martina Frodlund[4], Iva Gunnarsson[5], Elisabet Svenungsson[5], Helena Tydén[1], Andreas Jönsen[1], Robin Kahn[6], Åsa Johansson[7], Lars Rönnblom[3], Rikard Holmdahl[2], Anders Bengtsson[1] (*Shared first authorship)
[1] Department of Clinical Sciences, Section of Rheumatology, Lund University, Lund
[2] Division of Medical Inflammation Research, Department of Medical Biochemistry and Biophysics, Karolinska Institute, Stockholm
[3] Department of Medical Sciences, Science for Life Laboratories, Rheumatology Unit, Uppsala University, Uppsala
[4] Department of Clinical and Experimental Medicine, Rheumatology/Division of Neuro and Inflammation Sciences, Linköping University, Linköping
[5] Department of Medicine Solna, Unit of Rheumatology, Karolinska Institutet, Karolinska University Hospital, Stockholm
[6] Department of Clinical Sciences Lund, Section of Pediatrics, Lund University, Lund
[7] Department of Hematology, Lund University and Regional Laboratories Region Skane, Department of Clinical Immunology and Transfusion Medicine, Lund

Background
A single nucleotide polymorphism in the NCF1 gene (NCF1-339, rs201802880), reducing production of reactive oxygen species (ROS) is highly associated with development of systemic lupus erythematosus (SLE). Here, we aimed to characterize the NCF1-339 effects on molecular processes and clinical features of crucial importance in SLE, including pathways of neutrophil extracellular trap (NET) formation, type I IFN activity and auto-antibody profile.

Methods
NCF1-339 genotyped SLE subjects were included for analysis of NET-release pathways in neutrophils (n=31), serum IFN-activity using a cell reporter assay (n=141) and finally autoantibody profiles (n=305). A total number of 1087 SLE patients from the rheumatology departments of Lund, Linköping, Uppsala and Karolinska University Hospitals were genotyped for NCF1-339 and clinically characterized to validate findings in the Lund cohort.

Results
Neutrophils from SLE patients with low-ROS NCF1-339 genotype had impaired NET-formation ($p < 0.01$) with increased dependence on mitochondrial ROS ($p < 0.05$), compared to neutrophils from patients with normal-ROS genotype. High IFN activity was detected in 80 % of patients with low-ROS genotype compared to 21.4 % in the normal-ROS genotype group ($p < 0.05$). Analysis of autoantibodies, including anti-SSA, anti-SSB, RF, anti-DNA, anti-C1q, anti-cardiolipin (aCL), anti-RNP, anti-β2 glycoprotein I (anti-β2GP1), anti-ribosomal P and anti-Sm, revealed a striking association between low-ROS genotype, aCL and anti-β2GP1. Extended analysis in 1087 SLE subjects demonstrated that: any antiphospholipid antibody, OR 1.40 (1.01-1.95), anti-β2 glycoprotein I, OR 1.82 (1.02-3.24), lupus anticoagulans (LA), OR 1.72 ((1.12-2.63) and clinical diagnosis of antiphospholipid syndrome (APS), OR 1.74 (1.19-2.55), were significantly associated with low-ROS genotype. No significant association with other antibodies were detected.

Conclusions
The Ncf1-339 SNP mediated a decrease in NOX2 function, with a decreased capacity to form NETs, allowing dependence on mitochondrial ROS. The increased prevalence of high interferon activity in SLE patients with low-ROS phenotype and the unexpected connection between the ROS deficient NCF1-339 genotype and susceptibility to develop aPL and APS, suggests that this genotype affects pathogenetic pathways shared between SLE and APS.

72 ESTROGEN REGULATES MICRO-RNA-19A WITHIN LEUKOCYTES; A POTENTIAL FACTOR TO ESTRADIOL'S AMELIORATING EFFECTS TOWARDS RHEUMATOID ARTHRITIS

Kontaktinformation: Cai Davies, Cai.l.davies98@gmail.com

Cai L Davies[1], Malin C Erlandsson[1, 2], Sofia T Silfverswärd[1], Karin ME Andersson[1], Maria I Bokarewa[1, 2]
[1] Department of Rheumatology and Inflammation Research, University of Gothenburg, [2]Sahlgrenska University Hospital

Background
Rheumatoid arthritis (RA) is more prevalent in females. It is reported to be alleviated during pregnancy, and increase in severity post menopause, which implies estrogen as an important contributor in RA pathogenesis. Micro-RNA (miR) are short, non-coding RNAs, that act within a RNA-induced silencing complex to inhibit the translation of mRNA. MiRs have recently emerged as important epigenetic controls of leukocyte maturation and function.

Purpose
To study the effect of estrogen on the transcription of miR and their bio-processor enzymes in RA patients.

Methods
The leukocytes from peripheral blood monocytes (PBMC) of 145 female RA patients were analysed for the expression of miR bio-processing enzymes Dicer, Drosha and DGCR8 by RT-PCR to understand differences introduced by estrogen receptor alpha (ERα), a proxy of an active estrogen signaling. The material was split by the ERα medium (dCT 9.57) to form high and low ERα groups. MiR transcription array was performed by 3D-Gene microarray measuring >2560 miRs (TATAA Biocenter, Gothenburg) in human primary leukocytes from PBMC with known ERα status. Bioinformatic analysis was performed using Rstudio, miRDB and DIANA mirPath v.3 to predict engagements of miRs in signaling pathways and gene targets. To confirm estrogen's effect on miR expression, leukocytes from PBMC cultures were exposed to 10-10 mM estradiol and subjected to miR, mRNA and protein analysis.

Results
Bioinformatic analysis of the miR array using Rstudio identified 4 miRs to be significantly higher expressed with high ERα; hsa-miR-339-5p (FC=2.21, p=0.0041), hsa-miR-374c-5p (FC=2.62, p=0.0098) and hsa-miR-19a-3p (FC=3.16, p=0.0468); of which are involved in the estrogen signaling pathway (p=0.0015). Hsa-miR-144-5p (FC=3.37, p=0.0107) was not predicted to be involved.
In RA patient material, high ERα was found in younger patients (51y vs 61y, p=<0.0001), which is consistent with active estrogen signaling. Additionally, high ERα had lower DAS28 (p=0.0023), lower inflammation markers ESR (p=0.005) and IL6 (p=0.013), and less tender points (p= 0.0021). High ERα had significantly higher expression of miR-processing enzymes Dicer (p=0.02), Drosha (p=0.045), DGCR8 (P=0.019), implying larger amounts of miR are processed and matured.
We confirmed with RT-PCR that primary leukocytes stimulated with estrogen showed a significant increase in the production of hsa-miR-19a-3p (relative quantification of 1.84, p=0.039), while there was no significance with the production of miR-26a (RQ=1.49, p=0.359), miR-150 (RQ=1.52, p=0.672), miR-181 (RQ=1.35, p=0.25) and miR-92a (RQ=1.18, p=0.84).
Additionally, miR-19a upregulation was the only miR to be significantly associated to a higher baseline ERα expression (r= 0.79, p=0.014).

Conclusions
High ERα expression can be considered a significant regulator of miR transcription in leukocytes. MiR-processing enzymes regulated by estrogen and could be important in understanding molecular targets in RA and explain the ameliorating effects of estrogen. Our bioinformatic predictions and RT-PCR confirmation put emphasis on the potential importance of miR-19a in these mechanisms due to its strong association shown to estrogen.

Vårdvetenskap

73 KAN STÖD FRÅN NÄRSTÅENDE REDUCERA SJUKFRÅNVARO HOS PERSONER MED REUMATOID ARTRIT?

Kontaktinformation: Maria Bergström, maria.bergstrom@liu.se

Maria Bergström[1], Örjan Dahlström[2], Ingrid Thyberg[3], Mathilda Björk[4]

[1]Avdelningen för arbetsterapi, Institutionen för samhälls- och välfärdsstudier, Linköpings universitet, Norrköping
[2]Avdelningen för psykologi, Institutionen för beteendevetenskap och lärande, Linköpings universitet, Linköping
[3]Avdelningen för neuro- och inflammationsvetenskap, Institutionen för klinisk och experimentell medicin, Linköpings universitet, Linköping
[4]Reumatologiska kliniken i Östergötland, Hjärt- och Medicincentrum, Region Östergötland, Linköping

Bakgrund
Personer med reumatoid artrit (RA) löper större risk för sjukfrånvaro, och sannolikheten för att återgå i arbete är lägre jämfört med övriga befolkningen [1]. Arbete i sig är högt prioriterat bland personer med RA och för att de ska kunna fortsätta arbeta har stöd från den sociala omgivningen visat sig vara viktig [2]. Hur denna relation ser ut behöver dock undersökas ytterligare.

Syfte
Att analysera hur stöd från närstående påverkar samband mellan sjukdomsrelaterade variabler (sjukdomsaktivitet, funktionsnedsättning, greppstyrka och smärtintensitet) vid diagnos, och sjukfrånvaro under två år efter diagnos.

Material och metoder
Data från 326 personer med RA (71% kvinnor) i arbetsför ålder (18-63 år) inhämtades från kohorten TIRA-2 [3] där personerna blivit inkluderade 2006-2009. Vid diagnos var medelåldern 50 år (sd=11) och 89% använde antireumatiska läkemedel (DMARDs). Medelvärde för sjukdomsaktivitet mätt genom DAS28 (disease activity score 28 joint count) var 4.73 (sd=1.34), och för funktionsnedsättning undersökt genom HAQ (Health Assessment Questionnaire) var 0.91 (sd=0.60). Sjukfrånvaro och antal dagar under första och andra året efter diagnos inhämtades från Försäkringskassan. Upplevt stöd från närstående skattades genom VAS-skalor där 0 indikerade att inget stöd upplevdes och 100 att man upplevde sig ha mesta möjliga stöd. Stöd från familj och vänner skattades separat genom två olika skalor. Samband mellan sjukdomsrelaterade variabler och sjukfrånvaro, och hur dessa samband modererades genom upplevt stöd, analyserades genom zero-inflated negativ binomial regression.

Resultat
Under både första och andra året var högre sjukdomsaktivitet associerat med lägre risk för sjukfrånvaro (år 1: p=.003; år 2: p<.001), och stöd från familj försvagade denna koppling under första året (p=.029). Högre smärtintensitet var relaterat till lägre risk för sjukfrånvaro under båda åren (år 1: p=.005; år 2: p<.001). Greppstyrka mätt genom Grippit hade inte en signifikant koppling till sjukfrånvaro i sig under första året, men däremot gav en lägre greppstyrka ett större antal dagar med sjukfrånvaro (p=.035). Under år två var lägre greppstyrka associerat med både lägre risk för sjukfrånvaro i sig (p=.001), men också ett större antal dagar med sjukfrånvaro (p=.017). Samband hittades också mellan funktionsnedsättning och sjukfrånvaro under båda åren, där mer funktionsnedsättning var kopplat till lägre risk för sjukfrånvaro (år 1: p<.001; år 2: p<.001) och fler antal dagar (år 1: p=.001; år 2: p<.001). Gällande stödets direkta påverkan på sjukfrånvaro hittades en signifikant koppling både vid

upplevt stöd från familj (p=.007) och vänner (p=.025) under första året, då mer upplevt stöd minskade risken för sjukfrånvaro. Detta samband hittades dock inte under år två.

Slutsats
Stöd kan potentiellt minska sjukfrånvaro hos personer med RA. Störst effekt ses under första året efter diagnos. Närstående bör involveras i rehabiliteringsprocessen och på så sätt få mer insikt i stödets påverkan och hur detta har betydelse tidigt i processen.

Referenser
1. Hansen, S.M., Hetland, M.L., Pedersen, J., et al. Work ability in rheumatoid arthritis patients: a register study on the prospective risk of exclusion and probability of returning to work. Rheumatology. 2017;56(7):1135-1143.
2. Feddersen, H., Kristiansen, T.M., Andersen, P.T., et al. Construction of meaningful identities in the context of rheumatoid arthritis, motherhood and paid work: a meta-ethnography. Journal of Clinical Nursing. 2017;26(23-24):4117-4128.
3. Thyberg, I., Dahlström, Ö., Björk, M., et al. Hand pains in women and men in early rheumatoid arthritis, a one year follow-up after diagnosis. The Swedish TIRA project. Disability and Rehabilitation. 2017;39(3):291-300.

74 GENIA – A PATIENT SUPPORT MOBILE HEALTH APP FOR JIA

Kontaktinformation: Sara Röstlund, sara.rostlund@sll.se

Sara Röstlund[1], Johanna Kembe[1], Meera Montan[2], Karin Palmblad[3]

[1] Funktionsområde Arbetsterapi och Fysioterapi, Karolinska Universitetssjukhuset, Stockholm
[2] Upstream Dream AB
[3] Astrid Lindgrens Barnsjuhus, Barnreumatologen, Karolinska Univerisistetssjukhuset, Stockholm

Introduction
Genia is an app created as a patient support system for improved communication and collaboration with patients, families and the health care team. Its designed for IOS so far and is available in app store in both Swedish and English.

Objectives
Through the app, patients can take notes and track self-assessed observations in daily living, which could include Visual Analog Scale trackers on various symptoms, activities and other areas reflecting quality of life. Automatic data collection, such as Steps from Apple eHealth, is also included. In addition users can send Pre-Visit report to health care to help both patients/families and care team to prepare for meetings as well as to help understand patients needs and preferences.

Methods
A pilot project using the app has been driven by a physiotherapist, occupational therapist and the head physician of the Childrens rheumatology department in Karolinska University Hospital in Stockholm. Currently 56 patients at the clinic have Genia.

Results
The feedback on experience from both patient/families and the clinic include that the app:
1. helps patients/families remember, reflect and prepare
2. support clinic visits
3. support patient activation and communication

Conclusion
As health professionals we see great potential in the app to get the patient more active, understanding their disease and aware that their behavior and selfcare can make a different in how they feel.
Genia is co-designed with JIA patients, families and members of the care team and continues to be iterated with feedback and ideas provided by stakeholders. There are further opportunities to co-develop the app to be helpful to patients and clinics, for example the creation of different types of reports, new or improved trackers that could support patients or/and assist care teams to support patients in self-care, etc.

75 HOW DO PATIENTS WITH AXIAL SPONDYLOARTHRITIS EXPERIENCE HIGH-INTENSITY EXERCISE?

Kontaktinformation: Annelie Bilberg, annelie.bilberg@vgregion.se

Annelie Bilberg[1], Silje H Sveaas[2], Hanne Dagfinrud2, Kaisa Mannerkorpi1

[1] Institute of Neuroscience and Physiology, Section of Health and Rehabilitation, Physiotherapy, Sahlgrenska Academy, University of Gothenburg, Göteborg
[2] Norwegian National Advisory Unit on Rehabilitation in Rheumatology, Department of Rheumatology, Diakonhjemmet Hospital, Oslo, Norge

Introduction
Axial spondyloarthritis (axSpA) is a chronic inflammatory rheumatic disease, mainly affecting the spine and/ or sacroiliac joints and encompasses patients with both radiographic (ankylosis spondyloarthritis) and non-radiographic sacroiliitis. Due to increased risk of cardiovascular disease, treatment recommendations should include exercises with CVD risk-reducing potential, such as cardiorespiratory exercise. High-intensity exercise is shown to increase cardiorespiratory fitness more effectively than lower intensity exercise. However, the exercise mode is yet not fully accepted. The aim of the study was to investigate experiences of high-intensity exercise among patients with axSpA to provide useful in-depth understanding of patients' acceptance of this mode of exercise.

Method
14 respondents who had participated in a high-intensity exercise program for 12 weeks (1) were included in this qualitative study with individual semi-structured in-depth interviews. Interviews were analyzed by the methodology for quality content analysis (2). The respondents' median age was 53, ranging from 23-63 years and both men and women of different ethnicities were represented.

Results
The analysis resulted in 5 categories, supported by 19 subcategories describing the respondents' experiences of high-intensity exercise: I) High-intensity exercise as a challenge for both body and mind, supported by 3 subcategories, one of which being initial ambivalence, II) Increased faith in ones' own body, supported by 3 subcategories, one of which named rapid physiological response, III) Changed attitude toward exercise supported by 5 subcategories, one of which named acceptance and management of symptoms fluctuations during exercise, IV) Taking charge of one's health by challenging the disease supported by 3 subcategories, one of which named reversal of a downward spiral, V) Exercise in a social context supported by 4 subcategories, one of which being stimulating context.

Conclusions
Supervised, high-intensity interval exercise was perceived as challenging for both body and mind, but also described as a positive experience with rapid bodily effects that strengthened respondents' faith in their own bodies. The new experience seemed to have

changed the respondents' attitude and motivation for exercise and made them start taking charge of their health by challenging the disease. Exercise in a social context, under a professional leadership enhanced exercise self-efficacy, which helped the respondents to adhere to the exercise program.

References

1. Sveaas SH, Bilberg A, Berg IJ, Provan SA, Rollefstad S, Semb AG, Hagen KB, Johansen MW, Pedersen E, Dagfinrud. High intensity exercise for 3 months reduces disease activity in axial spondyloarthritis (axSpA): a multicentre randomised trial of 100 patients. Br J Sports Med. 2019 Feb 11. pii: bjsports-2018-099943. doi: 10.1136/bjsports-2018-099943. [Epub ahead of print]
2. Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. Nurse education today. 2004; 24:105-12.

76 HALVERAD INFUSIONSTID VID RITUXIMAB-BEHANDLING HOS PATIENTER MED REUMATISK SJUKDOM PÅVERKAR INTE FREKVENSEN AV INFUSIONSREAKTIONER

Kontaktinformation: Pernilla Johnson, pernilla.b.jonsson@ltdalarna.se

Pernilla Johnson[1], Valgerdur Sigurdardottir[2]

[1] Reumatologkliniken, Falu lasarett, Falun
[2] Centrum för Klinisk Forskning (CKF) Dalarna, Falu lasarett, Falun

Bakgrund

Inom reumatologin ges rituximab infusioner oftast under 3-4 timmar. Detta är resurskrävande både för vården och patienterna. En studie från 2014 visade att det var möjligt att korta infusionstiden för patienter med reumatoid artrit (1) men förkortad infusionstid har inte implementerats inom svensk reumatologi vad vi känner till. Hösten 2017 valde vi på reumatologkliniken i Falun att korta infusiontiden till ca 2 timmar för patienter som tidigare fått rituximab, oberoende av grundsjukdom.

Syfte

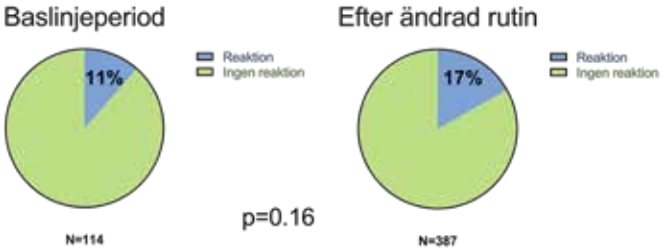
Att kartlägga om frekvensen av infusionsrelaterade reaktioner påverkades av den halverade infusionstiden.

Metod

I april 2017 påbörjades datainsamling på ett strukturerat sätt, där information om infusionsrelaterade reaktioner vid administration av rituximab registrerades i en för ändamålet avsedd dokumentationsmall i det elektroniska journalsystemet. En infusionsrelaterad reaktion definierades som; reaktion som föranledde åtgärd så som att antihistamin gav och/eller infusionen pausades. Under en baslinjeperiod fram till september 2017 gavs alla infusioner enligt tidigare praxis på 3-4 timmar. Ett halvår senare, i september 2017 infördes den nya kortare infusionstiden. Under hela perioden gavs premedicinering till alla patienter enligt följande: 1000 mg paracetamol, 10 mg loratadin och per oralt kortison (50 mg prednisolon eller ekvivalent dos av betametason), intogs i hemmet 1-2 timmar före infusion. Data om infusionsrelaterade reaktioner som registrerats fram till årsskiftet 2018/19 vid administrering av rituximab hämtades ut och analyserades deskriptivt. Frekvensen av infusionsrelaterade reaktioner jämfördes mellan baslinjeperioden april-september 2017 och september 2017 till december 2018. I analysen inkluderades inte förstagångs infusioner då de alltid ges enligt långsamt protokoll.

Resultat

Under hela perioden gavs 501 rituximab infusioner till totalt 230 individer med olika reumatiska diagnoser; reumatoid artrit, småkärlsvaskulit (GPA, EGPA, MPA), SLE, Sjögrens syndrom, myosit, UCTD och övriga diagnoser.



Tabell 1. Bakgrundinformation om patientgruppen som behandlats med rituximab under den aktuella perioden (april 2017-december 2018)

Antal individer	230
Diagnoser:	
RA, n (%)	184 (80)
Myosit/overlap/UCTD, n (%)	8 (3)
SLE/Sjögrens, n (%)	9 (4)
Småkärlsvaskulit, n (%)	20 (9)
Övriga diagnoser, n (%)	9 (4)
Ålder, medel (SD)	65 (13)
Kvinnor, n (%)	167 (73)

Under baslinjeperioden från april till september 2017 innan det snabba infusionsprotokollet infördes gavs 114 infusioner till 106 individer. Sedan det snabba infusionsprotokollet infördes i september 2017 fram till årsskiftet 2018/2019 har 387 infusioner givits till 218 individer. Total inträffade 78 icke allvarliga infusionsrelaterade reaktioner varav 13 med det långsamma protokollet (11.4%) och 65 med det snabba protokollet (16.8%), p=0.16. Ingen allvarlig reaktion inträffade.

94 av de totalt 230 individerna fick infusioner både under baslinjeperioden med det långsamma protokollet och efter ändringen med det snabbare protokollet. Sju av dessa individer som hade någon reaktion med det långsamma protokollet men som fick reaktion med det snabba protokollet. Å andra sidan fick 4 individer en reaktion med det gamla protokollet men inte när de fick infusion med det nya snabba protokollet. Tio av dessa individer hade reaktion både med det långsamma och med det snabba protokollet. Sjuttiofyra individer hade ingen reaktion, varken med det gamla eller med det nya protokollet.

Slutsats

Infusionstiden för rituximab förkortades med framgång till 2 timmar utan någon signifikant ökning av infusionsrelaterade reaktioner. Inga allvarliga reaktioner inträffade med varken det gamla eller det nya protokollet. Protokollet med den förkortade infusionstiden är nu standard på vår klinik till alla patienter som minst en gång tidigare fått rituximab oavsett diagnos.

Detta har resulterat i tidsbesparing för så väl kliniken som patienterna. De har nu fått större valmöjlighet på tider och dagar samt minskad tid på sjukhuset vid varje behandling.

Referenser

1. Pritchard CH, Greenwald MW, Kremer JM, Gaylis NB, Rigby W, Zlotnick S, et al. Safety of infusing rituximab at a more rapid rate in patients with rheumatoid arthritis: results from the RATE-RA study. BMC Musculoskelet Disord. 2014;15:177.

77 PEOPLE WITH POLYMYOSITIS AND DERMATOMYOSITIS EXPERIENCE IMPAIRED WORKABILITY AND QUALITY OF LIFE

Kontaktinformation: Karin Åström, karoin_astrom_5@hotmail.com

Malin Regardt[1]

[1] Funktion arbetsterapi och fysioterapi, Karolinska Universitetssjukhuset, Stockholm

Background
Polymyositis (PM) and Dermatomyositis (DM) are rare chronic disease, that cause muscle weakness and low muscle endurance in proximal muscles. Low Muscle endurance has a negative effect on activity performance. The majority of people affected are working age.

Objective
To describe self-rated work ability with and health-related quality of life (HRQOL) people with PM and DM. To investigate whether there is a correlation between self-rated work ability and health related quality of life.

Methods
Self-rated work ability was measured by using the questionnaires Work Ability Index (WAI) and the Work Ability Score (WAS) which is a single item question. HRQOL was measured with Short Form 36 SF-36 (SF-36).

Participants
48 people between the age of 46-61 years participated in the study.

Results
Self-rated work ability measured by WAI and WAS in persons with PM and DM varied between poor and good work ability. There was a strong correlation between self-rated work ability measured by WAI and WAS (rs 0,879).
HRQOL measured by the SF-36 was rated lower in persons with PM and DM when compared to the general population.
There was a moderate to high correlation between self-rated work ability measured by the WAI, the WAS and all dimensions of SF-36.

Conclusion
Persons with PM and DM self-rated their work ability as poor and HRQOL were significantly reduced when compared to the general population. The WAI and WAS scores correlated highly with may indicate the WAS and revealed comparable results indicate that WAS works as well as the WAI when used as a screening tool to identify reduced work ability in clinical practice

Keywords
Workability, Work Ability Index, Work ability Score, Health related Quality of life, Polymyositis and Dermatomyositis.

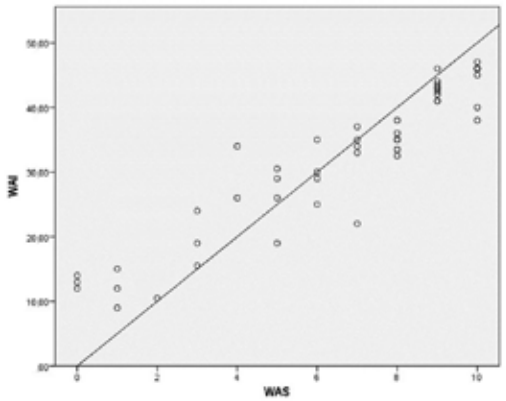


Figure 1 Correlation between self-rated work ability measured with WAI and WAS

78 ATT UTVÄRDERA HANDTRÄNING I AVSEENDE HANDFUNKTIONEN OCH AKTIVITETSFÖRMÅGA HOS PERSONER MED INKLUSIONSKROPPSMYOSIT. EN SINGLE, SUBJECT EXPERIMENTAL DESIGN

Kontaktinformation: Åsa Lindberg, asa.lindberg@sll.se

Åsa Lindberg[1], Malin Regardt[2]

[1] Centrum för reumatologi, Akademiskt specialistcentrum, Stockholm
[2] Funktionsområde arbetsterapi och fysioterapi, Karolinska universitetssjukhuset, Stockholm

Bakgrund
Inklusionskroppsmyosit (IBM) är en kronisk progressiv inflammatorisk myopati där muskulaturen långsamt förtvinas och försvagas. Muskelsvagheten utvecklas långsamt och brukar först drabba musklerna i låren och höfterna vilket gör det svårt att resa sig och gå. De långa fingerböjarmusklerna på underarmen drabbas också tidigt vilket ger svårigheter att greppa, bära och manipulera olika föremål. Personer med IBM får svårigheter i utförandet av de dagliga aktiviteterna till följd av sin muskelsvaghet. Handträning är en vanlig åtgärd för att förbättra handfunktionen och bibehålla aktivitetsförmågan hos patienter med olika reumatiska sjukdomar. Det finns i nuläget inga studier som har undersökt effekten av handträning på handfunktion och aktivitetsförmåga för personer med IBM.

Syfte
Syftet med studien var att utvärdera handträning i avseende handfunktion hos personer med IBM samt följsamheten under 12 veckors handträning samt att beskriva ledrörlighet och aktivitetsförmåga före respektive efter handträning hos personer med IBM.

Material och Metoder
Singel Subject Experimental Design (SSED) har använts i studien. SSED är av AB-design där A-fasen utgör baslinjemätningar (6 veckor) och B-fasen (12 veckor) interventionsmätningar. Handträningen innehöll både rörlighet och styrkeövningar och utfördes 5 dagar/vecka under 12 veckor (B-fasen).
Handstyrkan mättes med Jamar dynamometer, fingerstyrka (nyckelgrepp och trepunktspinch) med Pinch Gauge och ledrörligheten The Escola Paulista de Medicina-Range of Motion (EPM-ROM) scale. Aktivitetsförmågan mättes före respektive efter 12 veckors handträning med frågeformuläret Disabilities of Arm, Shoulder, and Hand Questionaire (DASH) och den semistrukturerad intervjun Canadian Occupational Performance Measure (COPM).
Upprepade mätningarna av handstyrka, nyckelgrepp och trepunktspinch utfördes under A-fasen och genererade ett medelvärde och standardavvikelse för varje enskild deltagare och utgjorde baslinjemätningen. För att det enligt SSED ska finnas en statistisk signifikant skillnad i handstyrka, nyckelgrepp och trepunktspinch ska minst 2 mättillfällen efter varandra följande under B-fasen överstiga/understiga två standardavvikelser baserat på A-fasens värden (baseline) för varje enskild deltagare.

Resultat
Totalt deltog nio personer i studien, 6 män och 3 kvinnor med IBM. Sjukdomsdurationen hos deltagarna var (Md) 4 år med en spridning från 1-9 år. Medelåldern var 71 år där den yngsta var 60 år och den äldsta 80 år.
Handstyrkan förbättrades signifikant hos 4 deltagare i höger och/eller vänster hand. Nyckelgrepp styrkan ökade i vänster hand hos 2 deltagare och trepunktspinch i höger eller vänster hand hos 3 deltagare. Ledrörligheten var god innan intervention och förändrades inte under träningsperioden.
Aktivitetsförmåga mätt med DASH förbättrades signifikant hos en deltagare och det kunde ses en tendens till förbättring hos ytterligare 6 deltagare.

Aktivitetsförmåga mätt med COPM skattade 6 deltagare förbättring i utförandet och/eller tillfredsställelse av valda aktivitetsmål. Den procentuella följsamheten varierade mellan 95% - 100% vilket kan anses som mer än acceptabelt.

Slutsats
Handträningsinterventionen gav varierande resultat där förbättringar kunde ses i både handfunktion och aktivitetsförmåga på individnivå. Vidare forskning behövs för att bekräfta resultaten.

79 RELIABILITY AND VALIDITY OF AN ACTIVITY LIMITATION MEASURE IN PERSONS WITH INCLUSION BODY MYOSITIS (IBM)

Kontaktinformation: Malin Regardt, malin.regardt@sll.se

Malin Regardt[1], Lisa Christopher Stine[2]

[1]Funktionsområde arbetsterapi och fysioterapi, Karolinska Universitetssjukhuset Stockholm, Stockholm
[2]Division of Rheumatology, Department of Medicine, Johns Hopkins University, Baltimore, Maryland, USA

Inclusion body myositis (IBM) is an autoimmune disease leading to muscle weakness in both proximal and distal muscles. Persons with IBM are affected in their daily life activities due to the muscle weakness. Reduced hand function is a cardinal finding in IBM and since our hands works as tools performing daily activities the hand function may influence the ability to perform meaningful activities. In clinical practice it is of importance to use valid and reliable instruments to measure different aspects of disease. It becomes even more crucial in rare diseases such as IBM where systematic data collection is necessary to gather enough information to do research and improve treatment. There are only few assessments validated for persons with IBM and none specifically point out how the hand function affect daily activities.

Objective
1) To test validity and reliability of the questionnaire Disability in the Arm, Shoulder and Hand (DASH) for patients with sIBM.
2) To describe activity limitation measured by the Canadian occupational Performance measure (COPM).

Method
Persons diagnosed with IBM were identified through the Swedish Myositis Network (SweMyoNet) quality registry in Stockholm Sweden. A total of 36 persons with IBM were included in the registry and were invited to participate. A total of 17 men and 9 women agreed to participate. Median (Q1-Q3) age was 74 (70-79) years and the median (Q1-Q3) disease duration was 7 (3-8) years.
Activity limitation were assessed by the questionnaire Disability of the Arm, Shoulder and Hand (DASH) and the The Canadian occupational performance measure (COPM) which investigate patient derived areas of daily activities.
The data collection was performed at the Karolinska university hospital in Stockholm Sweden. At baseline both DASH and COPM were performed. The participants received a second DASH questionnaire to be answered within two weeks (Follow-up) and send back to the researcher.

Results
There were good correlations between baseline measure and follow-up on DASH (rs 0.997; p=0.01) indicating that the DASH is consistent over a short period of time.

The results from COPM showed a variety of activities persons with IBM experienced problem with. Area with most activity limitations were basic self-care area such as dressing and grooming, fall, feeding, managing communication. Instrumental activities such as managing instruments, shopping and meal preparation. Leisure activities such as playing an instrument, run, paint and social activities such as visit friends, social engagements.
Some of these activities were found in the DASH but not all. E.g. missing socializing with friends and family, problems swallowing or were environment dependent

Conclusion
The results indicate that DASH have a good test re-test reliability DASH includes some of the activities that persons with IBM experience difficulties with but not all. The participants experienced difficulties in all areas of life.

Verksamhetsutveckling

80 REUMAPODDEN OM RA – EN PODCAST FÖR PATIENTER OCH ANHÖRIGA

Kontaktinformation: Martin Joelsson, martin.pg.joelsson@vgregion.se

Bakgrund
När patienten drabbas av reumatoid artrit (RA) uppstår ett behov av information. Vad är RA? Vad innebär det för mig och mitt liv att jag har drabbats? Vad finns det för olika behandlingar, och vilka fördelar och risker har de?
Svensk Reumatologi var tidiga med implementering av patientskolor, och inom Reumatologi SU finns en patientutbildning för ledgångsreumatism som ska erbjudas alla patienter. Tyvärr når vi i dagsläget inte alla våra patienter. Varje år erbjuds 10 – 20 platser i Göteborg av totalt 26 – 50 platser i Västra Götalandsregionen (VGR). Förutom i Göteborg så finns patientutbildning i Borås/Skene (2017). I VGR insjuknar varje år ca 400 personer i ledgångsreumatism/år.
Patienten behöver information om sin sjukdom, och verksamheten behöver fler och bredare sätt att nå ut med informationen.

Syfte
Att erbjuda en pålitlig och lättillgänglig informationskälla för patienter med RA och deras anhöriga.
Material och metoder:
Valet av områden som tas upp baseras dels på en patientenkät som lades ut via Reumatikerförbundens Facebook-sida (116 svarande), dels på våra och erfarna kollegors synpunkter om vad som är viktigt att ha med. Totalt ledde detta till 18 avsnitt om olika aspekter av att leva med RA, bl.a. prognos, behandling och kost. Avsnitten är ca 10 – 20 min långa. De finns tillgängliga på Spotify och i flertal podcast-appar såsom Podcaster, Acast och Pocket Casts. Avsnitten finns även på SRQ.nu.

Resultat
Podcastens första avsnitt lades upp i slutet av januari 2019. Av de 18 planerade avsnitten har vi lagt upp 4 stycken med hittills drygt ett tusen lyssningar. Av lyssningarna sker 90% i Sverige, och ca 10 % i andra länder i Europa, USA och Japan.

Slutsats
Podcast är en informationskanal som enkelt och kostnadseffektivt kan användas för att nå ut med information, och är tillgängligt för alla med en smart telefon. Podden har redan fått spridning, och vi hoppas att informationen kommer att nå många med RA framöver.

81 STÄNGNING AV REUMATOLOGISK SLUTENVÅRDSAVDELNING – AVVECKLING ELLER UTVECKLING?

Kontaktinformation. Emma Grenholm, emma.grenholm@ltdalarna.se

Emma Grenholm[1], Jörgen Lysholm[1]
[1]Reumatologimottagningen Falun, Falu lasarett, Falun

Bakgrund
Hösten 2018 stängdes Faluns reumatologiska slutenvårdsavdelning på grund av sjuksköterskebrist. Avdelningen hade fyra vårdplatser för patienter med reumatisk sjukdom. För att möjliggöra ett fortsatt gott omhändertagande av reumatiskt sjuka patienter i länet utformades en dagvårdsenhet, REDA (REumatologisk DAgvård), med möjlighet till övernattning på lasarettets patienthotell.

Syfte
Syftet var att i samma omfattning som tidigare kunna:
- utreda och behandla reumatiskt sjuka patienter,
- ge infusionsbehandlingar under flera dagar även till patienter med lång resväg,
- genomföra teambedömningar och ”second opinion” vid ett samlat tillfälle.

Metod
En arbetsgrupp bestående av läkare och sjuksköterskor har ansvarat för utformningen av REDA. Slutenvårdsavdelningens lokaler har i sin helhet övertagits av REDA. Nya termer har skapats i journalsystemet för att passa öppenvårdsformatet. Bemanningen består av en sjuksköterska och en läkare. Sjuksköterskan har möjlighet att ta hjälp av den sköterska som ansvarar för infusionsbehandlingarna som håller till i samma lokaler. Fysioterapeut, arbetsterapeut och kurator finns med i arbetet runt patienterna på samma sätt som de gjorde inom slutenvården. Patienter som är ADL-oberoende erbjuds övernattning på patienthotellet. Patienter som inte är ADL-oberoende, eller som behöver medicinska insatser dygnet runt, får i mån av plats läggas in på annan klinik. De är då inskrivna på respektive klinik och handläggningen beslutas i samråd med reumatolog. I första hand används Medicinkliniken.

Utvärdering har skett genom att:
- jämföra REDA och slutenvårdsavdelningen avseende bland annat antal vårdade patienter, inläggningsorsak och åtgärder under vårdtiden genom journalgenomgångar,
- mäta patientnöjdhet och personalens upplevelse av hur arbetssättet fungerar med hjälp av enkäter.

Resultat
Under de första sex månaderna (september 2018 – mars 2019) vårdades 52 patienter på REDA. På slutenvårdsavdelningen vårdades 55 patienter under motsvarande tidsperiod ett år tidigare. Medelvårdtiden på REDA var något kortare (2,2 dagar) än på slutenvårdsavdelningen (3,9 dagar). Liksom på slutenvårdsavdelningen var utredning den vanligaste orsaken till inläggning. På slutenvårdsavdelningen vårdades en större andel patienter med artritsjukdomar, medan andelen inflammatoriska systemsjukdomar var större på REDA. Inga patienter lades in på REDA för rehabilitering. En ny inläggningsorsak på REDA som inte förekom på slutenvårdsavdelningen under den studerade perioden var nyinsjuknade patienter som lades in för diagnosinformation, teambedömning och uppstart av behandling. För ytterligare jämförelser se tabell 1.
Resultat från patient- och personalenkäterna väntas bli klara i juni 2019.

	Slutenvård	REDA
Tidsperiod	sept 2017 – mars 2018	sept 2018 – mars 2019
Antal vårdepisoder	55	52
Vårddagar/episod, medel (min-max)	3,9 (1-8)	2,2 (1-6)
Andel kvinnor %	67	75
Ålder medel (min-max)	66 (19-88)	61 (20-87)
Väntetid till inläggning, medel (dagar)	9,2	4,4
Diagnosgrupp %		
Artritsjukdomar	42	29
Spondylartriter	7	0
Inflammatoriska systemsjukdomar	20	40
Vakulitsjukdomar	16	17
Övrigt	15	14
Huvudanledning till vård %		
Utredning	44	62
Bedömning	7	13
Nyinsjuknad	0	4
Medicinsk behandling	36	21
Rehabilitering	13	0
Åtgärdersgrupper %		
Provtagning	96	79
Läkemedelsinfusion	31	44
Bentäthetsmätning	9	12
Neurofysiologisk undersökning	15	4
Konsultation annan specialitet	38	29
Bedömning/behandling fysioterapeut	44	38
Bedömning/behandling arbetsterapeut	33	25
Röntgen	36	46
Biopsi för PAD	5	12
Antal åtgärder/vårdtillfälle, medel	3	3

Slutsats

Sammantaget tycks det som att REDA möjliggör utredning och behandling av länets reumatiskt sjuka patienter i väsentligen samma omfattning som tidigare på slutenvårdsavdelningen. Undantag är patienter i behov av inneliggande rehabilitering och patienter i behov av medicinska insatser dygnet runt. Dessa två grupper utgjorde en mindre andel av patienterna på slutenvårdsavdelningen under de sex månader som studerats. REDA har också inneburit nya möjligheter, nämligen teamomhändertagande av nyinsjuknade och vid komplicerade fall bedömning av annan läkare och övriga medlemmar i teamet under längre tid än vad som hinns med på ett mottagningsbesök.

82 PATIENTMEDVERKAN I STUDENTERNAS UTBILDNING

Kontaktinformation: Eva Waldheim, eva.waldheim@sll.se

Eva Waldheim[1], Susanne Karlfeldt[1], Representanter via patientrådet på Akademiskt specialistcentrum[1]

[1] Akademiskt specialistcentrum, Stockholms läns sjukvårdsområde, Stockholm

Bakgrund

Samverkan med patienter har under de senaste åren blivit en viktig del för att utveckla och förbättra vården.
Akademiskt specialistcentrum (ASC) består av fyra enheter; Centrum för diabetes, Centrum för neurologi, Centrum för reumatologi och Överviktscentrum. Uppdraget för ASC är att bedriva specialiserad öppenvård, forskning, vårdutveckling och utbildning. I uppdraget ingår också att öka patientens delaktighet i vården och ett patientråd har därför bildats där olika patientföreningar är representerade. Genom patientrådet har en utbildningsaktivitet implementerats.

Syfte

Att integrera patientens perspektiv i utbildningen av studenter från olika professioner.

Metod

Då studenter från olika professioner har verksamhetsförlagd utbildning på ASC bedrivs utbildningsaktiviteten ”patientföreträdare i studenternas utbildning”. Utbildningsaktiviteten består i att två patientföreträdare, vanligtvis från två olika patientföreningar, möter studenter från olika professioner för ett samtal, ca. 90 minuter, om hur livet med en kronisk sjukdom kan gestalta sig och om sina erfarenheter av vården under sjukdomstiden. I samtalen finns inga krav på att studenterna ska prestera eller lösa några problem, men studenterna förbereder två frågor till patientföreträdarna utifrån sin profession.

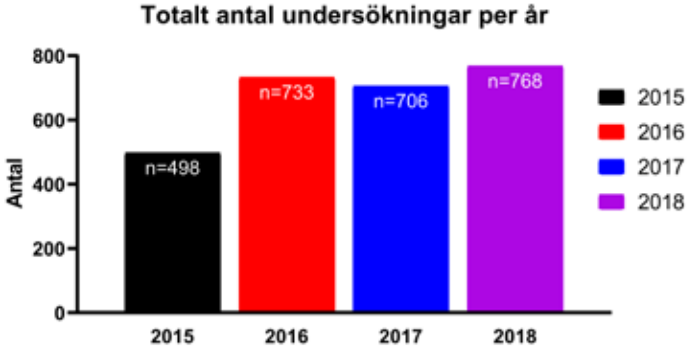
Resultat

Utvärdering av utbildningsaktiviteten:

- ett moment i studenternas utbildning som tidigare saknats:
- ”Samtalen gav mycket mer än jag väntat mig!-Något jag önskar att alla mina klasskompisar att få lyssna och reflektera kring”(sjuksköterskestudent grundutbildning)
- ”Väldigt roligt och givande! Lagom stor grupp (5 personer) och lagom lång tid. Skönt med en öppen dialog som inte bedöms utan bara är till för en själv”(läkarstudent)
- ”.. i förlängningen så tror jag att det kommer att bli ett utmärkt inslag i vårdpersonalens utbildning....det var ju lite kul frågor som dök upp, frågor som dom kanske inte ställt på en ”vanlig” undervisningssession”(patientföreträdare)
- djupare medvetenhet om hur det är att leva med en kronisk sjukdom:
- ”Givande berättelser som jag kommer att bära med mig i framtiden. Med den kunskap och de erfarenheter de gav mig kommer i fortsättningen bidra till en ökad förståelse i mitt yrkesverksamma liv ”(sjuksköterskestudent grundutbildning)
- ”Det är något jag tror jag alltid kommer ta med mig och ha i mitt bakhuvud i min framtida roll som läkare”(läkarstudent)
- djupare medvetenhet om betydelsen av vårdgivares bemötande:
- ”Jag fick bättre förståelse för hur patienterna uppfattar mottagandet i vården samt hur man kan förbättra patientsamtal”(läkarstudent)
- en känsla av meningsfullhet för patientföreträdarna:
- ”Det här känns väldigt givande och meningsfullt för mig och förhoppningsvis för studenterna också”(patientföreträdare)
- ”..det kändes som om de tyckte det var väldigt viktigt det jag hade att berätta”(patientföreträdare)

Slutsats

Patientmedverkan i form av samtal i en mindre grupp utgör en viktig utbildningsaktivitet som inte tillgodosetts tidigare i utbildningen. Genom diskussion kring patientföreträdarnas erfarenheter av att leva med en kronisk sjukdom kan studenternas syn på sin framtida yrkesroll påverkas och skapa förutsättningar för person-centrerad vård. För patientföreträdare blir det ett sätt att genom den personliga berättelsen påverka utvecklingen av lärandet och bemötande i vården.



83 TRANSITION FRÅN BARN- TILL VUXENREUMA

Kontaktinformation: Susanne Karlfeldt, susanne.karlfeldt@sll.se

Susanne Karlfeldt[1], Gabriella Samuelsson[1], Amel Guenifi[1]
[1] Centrum för reumatologi, Akademiskt specialistcentrum, SLSO, Stockholm

Bakgrund
Det finns ett mycket stort behov av att förbättra övergången från barnreumatolog till vuxenreumatolog. I dagsläget råder stora brister i detta transitionsarbete och många unga patienter upplever det som väldigt dramatiskt och traumatiskt att flyttas över till vuxenreumatologin.

Syfte
Att få ett bättre omhändertagande av patienten vid övergång från barnreumatologi till vuxenreumatologi.

Metod
Ett samarbete mellan barnreumatologen vid Astrid Lindgrens barnsjukhus (ALB) och reumatologenheterna vid Centrum för reumatologi, Danderyds sjukhus, Karolinska universitetssjukhuset samt Sachsska barnsjukhuset har nu pågått i drygt två år. I denna arbetsgrupp ingår även representanter från patientföreningen Unga Reumatiker. Regelbundna möten och workshops hålls var tredje månad och vid varje möte identifieras flertalet åtgärder och rutiner som kan införas både på vuxensidan såväl som på barnsidan.

Resultat
Vid Centrum för reumatologi (CFR) har en hel del åtgärder och rutiner införts för att möta denna patientgrupp på bästa sätt. En särskild transitionsmottagning har arbetats fram. Då CFR är en relativt nystartad enhet så har vi inga tidigare siffror att mäta resultaten mot, men med de åtgärder som vi vidtagit hoppas vi på att fånga upp de patienter som i dagsläget riskerar att försvinna i övergången från barn till vuxen samt att patienterna känner sig trygga och väl omhändertagna i hela överflyttningsprocessen. Under våren 2019 påbörjades arbetet med utvärdering av transitionsmottagningen genom utvärderingsblanketter till patienter som genomgått det särskilda transitionsflödet. En första sammanställning planeras under hösten 2019.

Slutsats
Genom att öka förståelsen för dels de olika enheternas arbetssätt (barn kontra vuxen) dels patienternas behov och förväntningar, så kan vi bättre ta emot patienterna på vuxenreuma och på så sätt få en mindre dramatisk och mer trygg och patientsäker övergång.

84 PATIENTRÅDET VID AKADEMISKT SPECIALISTCENTRUM

Kontaktinformation: Susanne Karlfeldt, susanne.karlfeldt@sll.se

Susanne Karlfeldt[1], Anna Tisäter[1]
[1] Akademiskt specialistcentrum, Akademiskt specialistcentrum, SLSO, Stockholm

Bakgrund
Patientens delaktighet har blivit alltmer betydelsefull och erkänd i arbetet med att förbättra och utveckla vård, forskning och patientsäkerhet. Att systematiskt ta tillvara patienters och närståendes kunskap och erfarenheter i verksamhetens utvecklings- och förbättringsarbete är ett måste för optimal verksamhetsutveckling.

Metod
Centrum för reumatologi startade formellt sin verksamhet i maj 2016 och i augusti samma år påbörjades samarbetet med de olika patientföreningarna som var aktuella för patientgruppen; Reumatikerförbundet, Reumatikerdistriktet Stockholm, Reumatikerföreningen i Stockholm, Unga reumatiker, Psoriasisförbundet samt psoriasisföreningen i Stockholm. Från våren 2017 etablerades även kontakt med de patientföreningar som är aktuella vid Akademiskt specialistcentrum (ASC), dvs MS, Parkinson och diabetes och sedan 1/1 2019 ingår även överviktscentrum i ASC och även de är representerade via HOBS, hälsa oberoende av storlek. Idag är 13 olika organisationer/föreningar med i Patientrådet, utöver Funktionsrätt som representerar 44 föreningar. ASC har en dedikerad person för arbetet som fungerar som kontaktperson för alla frågor som gäller patientmedverkan och patientsamverkan. Rådet träffas cirka var sjätte vecka och diskuterar kring en gemensamt framtagen agenda. Frågor som tas upp gäller allt ifrån lokalernas utformning, till bemötande, e-hälsotjänster, digitala verktyg, tillgänglighet, enhetens uppdrag mm. Alla möten protokollförs och protokollet delges därefter samtliga för vidare distribution inom respektive organisation. Vi har många goda exempel på praktisk tillämpning av samarbetet mellan Akademiskt specialistcentrum och patientföreningarna som vi kan visa på.

Resultat
Ett mycket effektivare och mer adekvat förbättrings- och utvecklingsarbete sker nu vid enheten, tack vare all input som kommit via representanterna i patientrådet samt enskilda patienter.

Slutsats
Ett nära samarbete mellan vård, forskning och patienter leder till förbättrade vårdprocesser, effektivare utvecklings- och förbättringsarbete samt ökad patientdelaktighet. En förutsättning för att detta skall fungera optimalt är bland annat att vårdenheten har möjlighet att sätta av resurser i form av en person som uttalad kontaktperson och som ansvarar för upprätthållandet av dessa möten och att beslutade åtgärder genomförs.

85 FATIGUEGRUPP

Kontaktinformation: Åsa Lindberg, asa.lindberg@sll.se

Åsa Lindberg[1], Julia Karlström[1]
[1] Centrum för reumatologi, Akademiskt specialistcentrum, SLSO, Stockholm

Bakgrund
Fatigue, eller sjukdomsrelaterad trötthet som det också kallas, är ett av de symtom som patienter med reumatiska sjukdomar beskriver som svårast att hantera. Vi som arbetsterapeut och fysioterapeut träffar regelbundet dessa personer och har länge velat hjälpa våra dem med de begräsningar som fatigue innebär. Patienter som upplever fatigue känner sig ofta hindrade i vardagslivet och får avstå från många aktiviteter till följd av trötttheten. Det beskrivs ofta som en ”ofrivillig isolering” av patienterna.
På Centrum för Reumatologi ville vi därför starta en fatiguegrupp för reumatiker för att se om det kunde hjälpa våra patienter att lära sig hantera sin trötthet på ett bättre sätt.

Metod
Fatiguegruppen startade under våren 2018 och har sedan dess utvecklats och formats om under processens gång. Gruppen består vanligtvis av 4-6 deltagare som träffas en gång i veckan under fem veckor ca 2 timmar varje gång. Träffarna utgår från olika teman; återhämtning, kroppens mekanik och fysisk aktivitet, kommunikation och arbetsmiljö, prioriteringar och normer, balans i vardagens aktiviteter och fortsatt planering och utvärdering. Deltagarna får hemuppgifter vid varje tillfälle för att öva på det de lärt sig och dessa uppgifter diskuteras vid efterföljande tillfälle.

Resultat
Deltagarna utvärderas med Fatigue severity scale (FSS) och de flesta deltagarna skattar en måttligt lägre fatigue efter kursen. Vi har också en uppföljning efter 3 månader och även då har det visat sig att de flesta deltagarna fortfarande skattar lägre på FSS.

Slutsats
Det märks att deltagarna är väldigt nöjda med de strategier som de lärt sig. De har fått verktyg som de kan använda och framför allt fått träffa andra personer med samma problematik. Deltagarna upplever efter avslutad kurs minskad fatigue och fortsätter att använda de strategier och tankesätt de fått lära sig under kursen, vilket också talar för att resultatet håller över tid.

86 DIGITALT ÅTERBESÖK

Kontaktinformation: Anna Tisäter, anna.tisater@sll.se

Anna Tisäter[1], Katarina Hetzberg-Nyquist[1]
[1]Centrum för reumatologi, Akademiskt specialistcentrum, Stockholm

Bakgrund
Idag finns flera digitala hjälpmedel som 1177, videomöte och PER-registrering via 1177 som våra patienter kan använda sig av. Vi provar nu att knyta ihop dessa hjälpmedel till ett helt digitalt återbesök. Utveckling pågår med att införa hela det digitala återbesöket i en app som gör det enkelt för patienterna att använda.

Syfte
Att skapa en sammanhängande digital patientprocess.

Metod
Det finns idag ett flertal digitala sätt att kommunicera och överföra information mellan patienter och vården. Vi knyter samman flera av dessa olika kommunikationssätt i ett helt digitalt återbesök. Patienten behöver då inte komma till mottagningen utan kan genomföra ett videomöte via appen ”Alltid öppet” med sin vårdgivare från en plats som passar hen. Inför videobesöket lämnar patienten prover vid valfri provtagningsenhet. Patienten registrerar också sjukdomsaktivitet och levnadsvanor i SRQ (Svensk reumatologis kvalitetsregister) i en PER-registrering via 1177. För att både patienten och vårdgivaren ska vara förberedda inför besöket, svarar patienten även på ett antal frågor i ett frågeformulär som nås via 1177. Det är frågor som bland annat gäller eventuella biverkningar av läkemedelsbehandlingen, om patienten haft några infektioner, vilka recept som behöver förnyas och eventuella särskilda frågor som patienten önskar ta upp på besöket. Inbyggt finns också frågor om patienten önskar tandvårdsintyg, om den är intresserad av FAR eller behöver hjälp med att sluta röka. Detta är frågor som vi i vården ibland glömmer att ställa och att bygga in dem i frågeformuläret blir som en checklista för personalen. Patienten skickar in svaren på frågorna via 1177 och de hamnar då i mottagningens inkorg för 1177-meddelanden. Vårdgivaren har nu inför det digitala återbesöket omfattande information om hur patienten mår, vad denne vill ta upp på mötet, resultat från PER-registrering och provsvar. Videobesöket genomförs sedan på en tid som passar patienten. Vårdgivaren dokumenterar som vanligt i journalen och skriver även en hälsoplan med planeringen till nästa kontakt. Både journalanteckningen och hälsoplanen kan patienten läsa på 1177.
Hälsoplanen har använts i olika former sedan hösten 2016 på Centrum för reumatologi. Tanken med hälsoplanen är att patienten vid varje läkar-/ sjuksköterske-/ fysioterapeut-/ arbetsterapeutbesök får en hälsoplan utskriven som är en sammanfattning av planeringen fram till nästa kontakt. Den innehåller information om nyinsatta/ändrade läkemedel, planerad provtagning, återbesöksplanering och kontaktvägar till mottagningen. Eftersom hälsoplanen är en journalanteckning kan patienten också läsa den via 1177 Vårdguidens e-tjänster.
Återkoppling från patienterna har varit att det är en aning omständligt att använda både 1177 och appen ”Alltid öppet” och att man vill ha en helhetslösning. Därför pågår nu ett arbete med att föra in hela processen med det digitala återbesöket i appen. Patienten får då en samlad lista över det hen ska göra med provtagning, PER-registrering och frågeformulär. Det går också i appen att skapa flera smarta lösningar som att patienten kan bifoga bilder.

Resultat
Projektet med helhetslösningen i appen planeras att utvärderas i sin helhet under våren 2020. De olika delarna i projektet, hälsoplanen och videomöte, har använts sedan en tid tillbaka och har utvärderats. Hälsoplanen som har använts sedan augusti 2016, är mycket uppskattad av patienterna och de uppfattar informationen i hälsoplanen som informativ. Videobesöket som besöksform har använts sedan mars 2018 och är även den uppskattad av såväl patienter som vårdgivare. Patienterna upplever att det är skönt att kunna vara på en plats som passar dem och att de slipper komma till mottagningen.

87 TELEFONÅTERBESÖK – MINSKAR PATIENTENS ORO OCH FRIGÖR TID

Kontaktinformation: Katarina Hertzberg-Nyquist, katarina.hertzberg-nyquist@sll.se

Anna Tisäter[1]
[1]Centrum för reumatologi, Akademiskt specialistcentrum, Stockholm

Bakgrund
I samband med den omstrukturering av vården för patienter med reumatisk sjukdom som har skett under de senaste åren i region stockholm, där specialistvården för patienter med vissa kroniska sjukdomar har flyttats ut från akutsjukhusen, har ett stort antal patienter flyttats över till akademiskt specialistcentrum, centrum för reumatologi (cfr). Många patienter har också flyttats över från privata vårdgivare till cfr. Den stora och snabba tillströmningen av patienter har lett till svårigheter att ta emot patienterna för återbesök inom planerad tid.
Patienterna har inför överflytten fått information via brev att planeringen från tidigare vårdgivare (akutsjukhus/privat) kvarstår. I brevet ingår också information om nästa provtagning samt kontaktuppgifter till cfr. Trots detta skapar oftast denna förändring oro bland patienterna och en upplevelse att hamna ”mellan stolarna”.

Syfte
Minska patienternas oro och öka patientsäkerheten i samband med överflyttning mellan vårdgivare.

Metod
Vi har bokat in patienter från väntelistan för återbesök på telefontider istället. I kallelsen framgår syftet med telefontiden samt en uppmaning om att lämna prover och om möjligt göra en registrering i srq innan telefonsamtalet. En läkare eller sjuksköterska ringer sedan upp patienten på avtalad tid.

Resultat
Under telefonsamtalet gör läkaren/sjuksköterska tillsammans med patienten en planering utifrån dennes behov. Många av patienterna har varit i remission och valt att skjuta på sitt återbesök 6-12 månader, de har endast behövt recept och remiss för provtagning. En mindre andel patienter har mått sämre och har då fått en tid för läkarbesök på mottagningen inom kort.
Samtidigt som patienterna har fått en individuell planering har vi på ett enkelt sätt kunnat förkorta väntelistorna för återbesök på mottagningen. Eftersom telefonsamtalen för vårdpersonalen sker på administrationsplats har också mottagningsrum frigjorts. Telefonsamtalen är också kortare än de fysiska återbesöken vilket lett till att fler patienter har kunnat bli uppringda än om de kommit på besök.
En utvärdering av arbetssättet pågår för närvarande. Detta sker genom telefonintervjuer där patienterna blir uppringda av en patientkonsult som ställer ett antal strukturerade frågor kring hur patienten upplevde det att ha en telefonkontakt istället för fysiskt besök. Patienten får även berätta fritt om sin upplevelse. Resultatet är inte sammanställt ännu, men data visar tydligt att patienterna upplevt att det har känts mycket positivt att bli uppringd. Många patienter uppskattar att de inte behöver besöka mottagningen utan kan ha telefonkontakt istället.

Slutsats
Genom att på ett enkelt sätt ändra ett planerat återbesök till en telefonkontakt har vi ökat effektiviteten, förbättrat patientsäkerheten och fått tryggare patienter. Arbetssättet innebär också att vi frigör tid till de patienter som mår sämre och som behöver mer tid hos vårdgivaren.

88 ULTRALJUDSUNDERSÖKNINGAR 2015-2018 PÅ REUMATOLOGKLINIKEN FALUN

Kontaktinformation: Valgerdur Sigurdardottir, valgerdur.sigurdardottir@ltdalarna.se

Valgerdur Sigurdardottir[1], Jörgen Lysholm[1]
[1]Reumatologkliniken Falun, Falu lasarett, Falun

Bakgrund
Under 2014/2015 införskaffades två ultraljudsapparater till Reumatologkliniken i Falun och de flesta av klinikens läkare har därefter gått någon form av ultraljudsutbildning. Någon specifik ultraljudsmottagning har inte införts utan ultraljudsapparaterna står placerade centralt på mottagningen och hämtas och används vid behov av mottagningsläkarna i samband med nybesök, återbesök och ledinjektionsmottagning. Ultraljudsundersökningar dokumenteras under ett specifikt sökord i det elektroniska journalsystemets besöksmallar.

Syfte
Syftet med denna kartläggning var att ta reda på hur mycket och till vad ultraljudsapparaterna har använts sedan 2015.

Metod
Information som dokumenterats under sökordet ”ultraljud led” söktes ut ur det elektroniska journalsystemets databas och analyserades med textsträngsanalys. Vi sökte efter omnämnande av handled, mcp, pip, armbåge, axel, knä, höft, fotled, mtp, sena, tmt och cmc och räknade hur många gånger respektive textsträng återfanns i textmassan och grupperade därefter data utifrån vilket år den hade dokumenterats.

Resultat
Totalt utfördes 2705 undersökningar under åren 2015-2018, i genomsnitt 676 undersökningar om året. I genomsnitt omnämndes 1,4 av ovanstående leder per undersökning.
Ultraljudsapparaterna användes frekvent men inte riktigt dagligen. Under perioden 2015-2018 användes apparaterna under 844 av 1040 arbetsdagar (81%).
Ordet ”handled” förekom oftast i journaltexten, därefter ”mcp”, ”fotled”, ”höft” och ”knä”.
2015 var mcp- och pip-leder de leder som oftast omnämndes i journaltexten men 2018 hade omnämnanden av dessa leder minskat och handled och fotled var i stället de oftast förekommande orden i journaltexten.

Slutsats
Ultraljudsapparaterna används nästan dagligen och användningen har ökat över tid. Det verkar finnas en tendens över tid att händernas småleder undersöks mer sällan och att ultraljudet i stället används mer till att undersöka handleder och fotleder.

Register · Abstracts

Titel	Presenterande författare	Abstract nummer
Artritsjukdomar		
Rheumatic immune-related adverse events in patients treated with immune checkpoint inhibitors at Sahlgrenska University Hospital: clinical characterization and possible associated T cell profiles	Nellie Fischer	1
Increased risk of leishmaniasis in patients on immunomodulatory treatment	Ann-Marie Calander	2
Alcohol consumption and development of arthritis among patients with anti-citrullinated peptide antibodies and musculoskeletal pain	Emma Eloff	3
Gender differences in clinical symptoms of arthritis and arthralgia	Jennifer Grahn Hellberg	4
Cardiovascular risk factors and comorbidities in patients with PsA, RA and the general population	Anton Landgren	5
Low serum IGF1 is associated with hypertension and predicts early cardiovascular events in women with rheumatoid arthritis	Malin Erlandsson	6
Osteoprotegerin and osteocalcin are associated with atherosclerosis in patients with rheumatoid arthritis: a prospective cohort study	Bengt Wahlin	7
Soluble receptor for advanced glycation end products (sRAGE) and risk for cardiovascular diseases in females with rheumatoid arthritis	Mitra Nadali	8
Predictors of unacceptable pain, and unacceptable pain with low inflammation, in early rheumatoid arthritis	Carl Turesson	9
The Relation between Inflammatory Joint Activity and Disability related to the Lower Extremities in Early Rheumatoid Arthritis	Maria Mellblom Bengtsson	10
The Impact of Disease Activity and Patient Reported Outcomes on Grip Force Over Time in Early Rheumatoid Arthritis	Maria Rydholm	11
Have the clinical characteristics of rheumatoid arthritis at presentation become milder over time? Results from a nationwide study over three decades in Sweden	Jon Thorkell Einarssson	12
Are sense of social support and low decision latitude at work linked to risk of rheumatoid arthritis, and if so, how do they relate to other risk factors? Results from the swedish epidemiological investigation of rheumatoid arthritis	Louise Hedenstierna	13
Disease activity trajectories in rheumatoid arthritis – a tool for prediction of outcome	Inger Gjertsson	14
Rituximab som behandling av Reumatoid artrit i Dalarna – en kartläggning av perioden juni 2012 – december 2016	Elin Staffas	15
Baseline adiponectin levels predict future development of rheumatoid arthritis in subjects with obesity	Yuan Zhang	16
In overweight subjects, serum adiponectin predicts the development of rheumatoid arthritis independently of other adipokines	Yuan Zhang	17
CD21-/low B cells associate with joint destruction in patients with manifest rheumatoid arthritis	Katrin Thorarinsdottir	18
Secretory antibodies to citrullinated peptides in plasma and saliva from rheumatoid arthritis patients and their unaffected family members	Anna Svärd	19
Low energy fractures in rheumatoid arthritis – associations with genes and clinical characterist	Lotta Ljung	20
Predictors of erosion and joint space narrowing progression in patients with early rheumatoid arthritis	Emil Rydell	21
Safety Profile of Baricitinib for the Treatment of Rheumatoid Arthritis up to 7 Years: An Updated Integrated Safety Analysis	Esbjörn Larsson	22
Irritable Bowel Syndrome Symptoms in Axial Spondyloarthritis and Healthy Controls, and their Relation to Disease Characteristics – Is It an Overlooked Comorbidity?	Johan Karlsson Wallman	23

Titel	Presenterande författare	Abstract nummer
Artritsjukdomar		
Clinical diagnoses of axial spondyloarthritis show a high overall concordance with classification criteria fulfilment, but are less consistent for differentiation between subtypes in axial established disease: results from the spartakus cohort	Elisabet Lindqvist	24
Anti-cd74 autoantibodies in patients with ankylosing spondylitis and its relation to sex and radiographic alterations	Lan Do	25
Plasma levels of zonulin, a modulator of the permeability of tight junctions of the intestine, in patients with ankylosing spondylitis	Urban Hellman	26
Hepatocyte growth factor is a predictor of development of new syndesmophytes in men with ankylosing spondylitis. A five year prospective study	Anna Deminger	27
Reduced strain and increased stiffness of common carotid arteries in patients with ankylosing spondylitis	Helena Forsblad d'Elia	28
Cardiovascular risk factors in gout compared to as, psa and ra – results from a questionnaire study	Mats Dehlin	29
Identical two-year treatment retention of originator and biosimilar infliximab. Results of a nordic collaboration including 1319 patients with spondyloarthritis	Ulf Lindström	30
Similar one-year treatment retention of originator and biosimilar etanercept. Results of a nordic collaboration including 1015 patients with spondyloarthritis	Ulf Lindström	31
Incidence of extra-articular manifestations in ankylosing spondylitis, psoriatic arthritis and undifferentiated spondyloarthritis – results from a national register-based cohort study	Karin Bengtsson	32
Elektroniska universalverktyget easy angle kan ersätta myrinmätare vid mätning av cervikal rörlighet hos patienter med spa	Julia Karlström	33
The combined effects of lifestyle habits on health-related quality of life, physical and mental functions in patients with spondyloarthritis	Elisabeth Mogard	34
Sustained low disease activity after weight loss treatment in patients with psoriatic arthritis and obesity; a 12-months follow-up	Eva Klingberg	35
Multicentre, randomised, open-label, assessor-blinded, parallel-group head-to-head comparison of the efficacy and safety of ixekizumab versus adalimumab in patients with psoriatic arthritis naive to biologic disease-modifying anti-rheumatic drugs: 24-week results	Esbjörn Larsson	36
Dual energy ct findings in gout with rapid kilovoltage-switching source with gemstone spectral imaging	Mats Dehlin	37
How do gout-related comorbidities and lifestyle factors cluster in a large health survey of the general population? – Results from the malmö preventive project cohort in southern sweden	Mats Dehlin	38
The absolute risk of clinically diagnosed gout by clusters of gout associated comorbidities and lifestyle factors – results from 30 years follow-up of the malmö preventive project cohort in southern sweden	Mats Dehlin	39
Adequate urate lowering therapy for gout is rare in clinical practice but preserves renal function when effected	Valgerdur Sigurdardottir	40
Occupational exposure to inorganic dust – a novel risk factor for incident gout?	Valgerdur Sigurdardottir	41
Msu crystals trigger radical production and nets formation in human neutrophils after in vivo transmigration	Lena Björkman	42
Cartilage pathology in rheumatoid arthritis	Inger Gjertsson	43
The rheumatoid arthritis risk gene aire is induced by cytokines in fibroblast-like synoviocytes and augments the pro-inflammatory response	Anna-Karin H. Ekwall	44
A toolbox of recombinant antibodies to study human aminoacyl trna synthetases in health and disease	Charlotta Preger	45
Mpges- inhibitors: the next generation of nsaid	Filip Bergqvist	46
Expression of phenol-soluble modulin beta protects staphylococcus aureus septic arthritis	Tao Jin	47
Jak-inhibitors in s aureus infections	Anders Jarneborn	48
The yin and yang of lipoproteins in developing and preventing infectious arthritis by staphylococcus aureus	Tao Jin	49
Igf1r and foxo1 signaling in hippocampus during experimental arthritis	Malin Erlandsson	50

Titel	Presenterande författare	Abstract nummer
Systemsjukdomar		
Prevalence of biopsy proven giant cell arteritis in southern sweden	Pavlos Stamatis	51
Incidence and seasonal variation of biopsy-proven giant cell arteritis – revisited a 20 years population-based study from sweden	Pavlos Stamatis	52
Infections are associated with increased risk of giant cell arteritis – a population-based case-control study from southern sweden	Pavlos Stamatis	53
Infections are associated with increased risk of mpo- but not pr3-anca associated vasculitis – a population-based case-control study from southern Sweden	Jens Rathmann	54
Incidence and predictors of severe infections in ANCA associated vasculitis in a population-based cohort – preliminary results	Jens Rathmann	55
Clinical features and outcome of anti-melanoma differentiation associated gene 5 (MDA5) antibody positive idiopathic inflammatory myopathies – an experience from the region Västra Götaland	Josefin Marklund	56
Presence of myositis-associated antibodies, especially SSA52, predicts more severe lung involvement in patients with myositis – a study of 70 patients with inflammatory myopathies at Sahlgrenska University hospital	Josefin Marklund	57
Myositis-specific autoantibodies in the diagnosis of idiopathic inflammatory myopathies and their relation to the clinical phenotype of the disease	Josefin Marklund	58
Osteoporosis in patients with idiopathic inflammatory myopathies	Balsam Hanna	59
Muscle function and health-related quality of life in patients with polymyositis and dermatomyositis	Kristofer Andreasson	60
Experience of pain in polymyositis and dermatomyositis – a qualitative study	Helene Alexanderson	61
Predictors of low disease activity and clinical remission following belimumab treatment in systemic lupus erythematosus	Ioannis Parodis	62
A simplified approach for patients with SLE to report disease activity using a revised version of the Swedish Systemic Lupus Activity Questionnaire	Susanne Pettersson	63
Epigenome-wide association study reveals differential DNA methylation in systemic lupus erythematosus patients with a history of ischemic heart disease	Dag Leonard	64
Shared and unique patterns of DNA methylation in systemic lupus erythematosus and primary Sjögren's syndrome	Juliana Imgenberg-Kreuz	65
Genetic regulation of the interferon system	Christian Lundtoft	66
The regulation and pharmacological modulation of immune complex induced production of type III IFN by plasmacytoid dendritic cells	Karin Hjorton	67
Investigation of SLE subgroups for targeted therapy: A proteomics study	Helena Idborg	68
Combined data driven computational tool and B cell maturation assay for new target identification in systemic lupus erythematosus	Mingmei Shang	69
Decreased platelet size in systemic lupus erythematosus: up-regulation of type i interferon proteins	Lina Wirestam,	70
A Ncf1 polymorphism decreasing neutrophil production of reactive oxygen species and NETs is associated with high serum ifn activity and antiphospholipid syndrome in systemic lupus erythematosus	Petrus Linge	71
Estrogen regulates micro-RNA-19a within leukocytes; a potential factor to estradiol's ameliorating effects towards rheumatoid arthritis	Cai Davies	72

Titel	Presenterande författare	Abstract nummer
Verksamhetsutveckling		
Kan stöd från närstående reducera sjukfrånvaro hos personer med reumatoid artrit?	Maria Bergström	73
GENIA – a patient support mobile health app for jia	Sara Röstlund	74
How do patients with axial spondylo arthritis experience high-intensity exercise?	Annelie Bilberg	75
Halverad infusionstid vid rituximab-behandling hos patienter med reumatisk sjukdom påverkar inte frekvensen av infusionsreaktioner	Pernilla Johnson	76
People with polymyositis and dermatomyositis experience impaired workability and quality of life	Karin Åström	77
Att utvärdera handträning i avseende handfunktionen och aktivitetsförmåga hos personer med inklusionskroppsmyosit. En single, subject experimental design	Åsa Lindberg	78
Reliability and validity of an activity limitation measure in persons withinculsion body myositis (IBM)	Malin Regardt	79
Vårdvetenskap		
Reumapodden om RA – en podcast för patienter och anhöriga	Martin Joelsson	80
Stängning av reumatologisk slutenvårdsavdelning – avveckling eller utveckling?	Emma Grenholm	81
Patientmedverkan i studenternas utbildning	Eva Waldheim	82
Transition från barn- till vuxenreuma	Susanne Karlfeldt	83
Patientrådet vid akademiskt specialistcentrum	Susanne Karlfeldt	84
Fatiguegrupp	Åsa Lindberg	85
Digitalt återbesök	Anna Tisäter	86
Telefonåterbesök – minskar patientens oro och frigör tid	Katarina Hertzberg-Nyquist	87
Ultraljudsundersökningar 2015-2018 på reumatologkliniken Falun	Valgerdur Sigurdardottir	88

POST CONGRESS

Ett sammanfattande möte från kongressen.
Kostnadsfritt för läkare, sköterskor och övrig vårdpersonal

Post EULAR

Malmö och Stockholm

Välkommen till Post EULAR!

Vi har nöjet att än en gång kunna bjuda in till **Post EULAR i Stockholm och Malmö.** Mötet kan du även följa **online via livestream**. Mötet sammanfattar höjdpunkterna från EULAR i Madrid 2019. Mötet är tack vare våra utställare kostnadsfritt för all vårdpersonal.

! *Denna gång sänds mötet i **Malmö** även **live via webben** - mer information om hur du deltar online fås vid anmälan.*

MALMÖ: 26 aug 2019
Tid: 17.30 - 20.00 följt av mingelmiddag
Plats: Scandic Triangeln
Föreläsare: Carl Turesson

STOCKHOLM: 5 sept 2019
Tid: 14.00 - 16.15 Inleds med mingellunch 13.00
Plats: Hilton Stockholm Slussen
Föreläsare: Carl Turesson

Anmälan och mer information hittar du på:
https://mediahuset.link/EULAR-Malmo **https://mediahuset.link/EULAR-Sthlm**

Vi tackar våra utställare för att de gör detta möte möjligt:

abbvie · Bristol-Myers Squibb · Celgene · Lilly · NOVARTIS · Pfizer · Roche · SANOFI GENZYME · ucb

*Mötet arrangeras av **Mediahuset i Göteborg AB** och finansieras tack vare utställande bolag från läkemedelsindustrin. Deltagande bolag har ingen möjlighet att påverka programmets innehåll eller utformning och mötet arrangeras i övrigt i enighet med LIF:s etiska regelverk.*
*Vid frågor gällande detta möte, vänligen kontakta **Helen Semmelhofer** på **helen@mediahuset.se***

Reumakalender

2019

2 sep **SK-kurs: Inflammatoriska systemsjukdomar**
2-6 september
Stockholm

11 sep **Reumadagarna 2019**
11-13 september
Falun

16 sep **The 16th International Congress on Antiphospholipid Antibodies**
16-17 september
Manchester

18 sep **Kurs i Muskuloskeletalt Ultraljud**
18-20 september
Köpenhamn

30 sep **SK-kurs: Reumatologisk farmakoterapi**
30 september–4 oktober
Lund

3 okt **Reumatologiskt ultraljud – fördjupningskurs**
3-4 oktober
Sigtuna

17 okt **Fortbildningskurs: Akut reumatologi för specialister**
17-18 oktober
Göteborg

18 okt **3rd EULAR Registers and Observational Drug Studies (RODS)**
18-19 oktober
Amsterdam

8 nov **ACR 2019**
8-13 november
Atlanta, USA

14 nov **RUCh Modul 4**
14-15 november
Stockholm

28 nov **SRF:s Utvecklingsdag**
28 november
Stockholm

29 nov **Post-ACR**
29 november
Stockholm

2020

22 jan **SRQ:s Registerdag 2020**
22 januari
Stockholm

23 jan **SRF:s Riktlinjedag 2020**
22 januari
Stockholm

25 mars **The 12th European Lupus Meeting**
25-27 mars
Brygge, Belgien

3 jun **EULAR 2020**
3-6 juni
Frankfurt, Tyskland

2 sep **Scandinavian Congress of Rheumatology**
2-5 september
Ålesund, Norge

23 sep **Reumadagarna 2020**
23-25 september
Stockholm

6 nov **ACR 2020**
6-10 november
Washington D.C.

LÅT INTE DIN TIDNING HAMNA PÅ VILLOVÄGAR!

Logga in och uppdatera dina uppgifter på vår hemsida när du flyttar eller byter arbetsplats!

svenskreumatologi.se

ANNONS