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OP0350

DEPRESSION AND ANXIETY IN AN EARLY RHEUMATOID ARTHRITIS INCEPTION COHORT. ASSOCIATIONS WITH EPIDEMIOLOGICAL, SOCIOECONOMIC AND DISEASE FEATURES

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Background: Co-morbid depression and anxiety occur in the context of rheumatoid arthritis (RA). Their characteristics, including associations with RA features, have not been examined previously in an early RA inception cohort with longitudinal follow up data.

Objectives: To examine the frequency of anxiety and depression in patients with early RA, over time and to explore associations with epidemiological, socioeconomic and disease-related features.

Methods: The Scottish Early Rheumatoid Arthritis (SERA) inception cohort recruited newly diagnosed RA patients (fulfilling ACR-EULAR 2010 criteria) followed-up thereafter every 6 months. Pre-specified clinical, laboratory and psychosocial features, including anxiety and depression scores (measured by the hospital anxiety and depression scale; score range: 0–21 for each one), were recorded at baseline and at follow-up. Non-parametric tests and logistic regression models were used to examine the nature and magnitude of associations.

Results: Data from 848 RA patients were available. Frequency of anxiety and depression at baseline was 19.0% and 12.2% with a reduction at month 12 to 13.4% and 8.2% ($p=0.004$ and $p=0.01$, respectively). Anxiety and depression scores were correlated with DAS28 at all time points, including baseline (all $p<0.0001$). Change in DAS28 (final-baseline) was correlated with change in depression and anxiety scores at month 6 ($p<0.0001$, $r=0.265$ and $p=0.001$, $r=0.230$) and 12 ($p<0.0001$, $r=0.288$ and $p<0.0001$, $r=0.217$). In univariate analyses, anxiety and depression scores were associated with various features, at different time points (table 1). CRP was highly associated with depression but not anxiety scores at all time points, with change in CRP correlating with change in depression scores (month6; $p<0.0001$, $r=0.185$ and month12; $p<0.0001$, $r=0.302$). Multivariable analysis indicated that anxiety score at baseline was associated with female gender ($p=0.01$, Beta=0.133), younger age ($p=0.007$, Beta=-0.181) and patient global assessment score (PGA) ($p<0.0001$, Beta=0.201), and at month 6 and 12 with low BMI (month 6, $p=0.024$, Beta=-0.091; month 12, $p=0.002$, Beta=-0.139), PGA (month 6, $p<0.0001$, Beta=0.222; month 12, $p<0.0001$, Beta=0.248) and baseline anxiety scores (month 6, $p<0.0001$, Beta=0.623; month 12, $p<0.0001$, Beta=0.586). For depression scores, multivariable analysis indicated association at baseline with PGA ($p<0.0001$, Beta=0.286) and at month 6 and 12 with PGA (month 6, $p<0.0001$, Beta=0.306; month 12, $p<0.0001$, Beta=0.320), CRP levels (month 6, $p=0.006$, Beta=0.150; month 12, $p=0.002$, Beta=0.171) and baseline depression (month 6, $p<0.0001$, Beta=0.422; month 12, $p<0.0001$, Beta=0.356) and anxiety scores (month 6, $p<0.0001$, Beta=0.189; month 12, $p=0.008$, Beta=0.170).

Abstract OP0350 – Table 1 Variables associating with high anxiety and/or depression score at baseline and at month 6 and 12. 1) ANOVA test, compared to employed and to retired individuals, 2) patient global VAS used for DAS28 calculation. 3) average alcohol units/week. NA: not applicable, BMI: body mass index, IM: intramuscular. *by mouth, *intramuscular

Anxiety score						
Factors/confounders	Baseline		6 months		12 months	
	p value	r	p value	r	P value	r
Age	<0.001	-0.187	<0.001	-0.158	0.001	-0.131
BMI					0.044	-0.084
Female gender	0.002	NA				
Smoking			0.008	NA	0.039	NA
Unemployment ¹	0.001	NA	<0.001	NA	<0.001	NA
Anxiety baseline			<0.001	0.691	<0.001	0.632
Depression baseline			<0.001	0.507	<0.001	0.443
DAS28 baseline			<0.001	0.175	0.020	0.114
Patient global VAS ²	<0.001	0.210	<0.001	0.397	<0.001	0.387
Depression score						
Factors/confounders	Baseline		6 months		12 months	
	p value	r	p value	r	P value	r
Age	0.004	-0.101				
BMI	0.037	0.075				
Alcohol units ³	0.002	-0.107				
Smoking			0.021	NA	0.002	NA
Unemployment	0.001	NA	<0.0001	NA	<0.0001	NA
Anti-CCP negative	0.013	NA				
Corticosteroids			0.017*	NA	0.005*	NA
Anxiety baseline			<0.001	0.488	<0.001	0.423
Depression baseline			<0.001	0.602	<0.001	0.519
DAS28 baseline			<0.001	0.223	<0.0001	0.172
Patient global VAS	<0.0001	0.328	<0.001	0.500	<0.001	0.522
ESR	0.016	0.116			0.029	0.130
CRP	<0.0001	0.163	<0.0001	0.152	0.004	0.117

Conclusions: Depression and anxiety are significant comorbidities at the time of RA diagnosis. While there are also associations with socioeconomic and other

variables, the close relationship between CRP and depression provides further support to the already compelling data linking inflammation and depression. Changes in the anxiety and depression scores, in tandem with disease activity over time, requires further investigation.

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Battling hyperinflammation in paediatric rheumatic diseases

OP0351

FIRST DIAGNOSIS OF UVEITIS IS NOT HIGHER AMONG JUVENILE IDIOPATHIC ARTHRITIS (JIA) PATIENTS RECEIVING ETANERCEPT COMPARED TO METHOTREXATE

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Background: Uveitis is a common comorbidity among patients with juvenile idiopathic arthritis (JIA), occurring in approximately 1 in 10 JIA patients. Among other risk factors such as early age at JIA onset, shorter disease duration and oligoarticular subtype, the use of etanercept (ETN) may also increase the risk of developing uveitis. However, previous studies have produced conflicting results, often limited by small sample sizes and limited follow-up time.

Objectives: To determine if patients receiving ETN have a higher risk of developing uveitis for the first time compared to patients receiving methotrexate (MTX).

Methods: The study population comprised JIA subjects recruited to the BSPAR ETN Cohort Study at point of starting ETN or MTX. Only patients with no prior history of uveitis were included. This was an on-drug analysis, whereby events were only included if the patient was on ETN or MTX at the time of uveitis onset. Follow-up began from date of first treatment to first uveitis diagnosis, discontinuation of ETN or MTX, most recent follow-up up to 30/11/16 or death, whichever came first. Crude incidence rates of uveitis per 100 person years (pyears) were calculated. Hazard ratios (HR) comparing risk of uveitis with ETN versus MTX were calculated using propensity adjusted Cox regression.

Results: Of 1517 patients, 1009 were registered to the ETN cohort (all receiving ETN) and 508 to the MTX cohort. ETN patients were older, with longer disease duration, and were less likely to have persistent oligoarthritis. The mean age at uveitis diagnosis was 8 years in the ETN cohort versus 5 years in the MTX cohort. The HR adjusted for age and gender, disease scores, disease duration, baseline steroid use, co-morbidity, ILAR subtype, and ethnicity found a lower risk of developing uveitis inpatients receiving ETN compared to MTX (0.30, 95% CI (0.10–0.90)) (table 1).

Abstract OP0351 – Table 1

New onset uveitis	Patients taking MTX	Patients taking EN
Subjects (n)	508	1009
Age, median (IQR)	9 (3–13)	11 (8–14)
Gender, % female	71	69
Disease duration (years), median (IQR)	1 (0–1)	3 (1–6)
CHAQ score, median (IQR)	0.9 (0.3–1.5)	1.0 (0.3–1.6)
ILAR subtype, n (%)		
Persistent oligoarthritis	84 (17)	53 (5)
Other non-systemic JIA	424 (83)	955 (95)
Person years exposure	908	2471
New diagnosis of uveitis	18	15
Crude incidence rates per 100 pyears	2.4 (1.4–3.9)	0.6 (0.3–1.0)
Unadjusted HR (95% CI)	ref	0.24 (0.11–0.52)*
Age & Gender adjusted HR (95% CI)	ref	0.41 (0.18–0.95)*
Fully adjusted HR (95% CI)	ref	0.30 (0.10–0.90)*

* $p<0.05$

Conclusions: Within this cohort of UK children with JIA, a new diagnosis of uveitis is not more common among children receiving ETN compared to MTX, even after taking into account differences in age and disease duration between the cohorts. This is reassuring given there is potential for increased risk of uveitis among children with JIA receiving ETN. Age appears to be a major influencing factor as patients in the MTX cohort were younger thus at a higher risk of uveitis. For patients with a high uveitis risk other treatment options could have been

selected, leading to possible confounding by indication, which in turn makes ETN look protective. Researchers should take these selection biases into account when analysing their results.

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Gut bacteria: the boss of the immune system_____

OP0352

AN INCREASED PREVALENCE OF PERIODONTAL DISEASE, PORPHYROMONAS GINGIVALIS AND AGGREGATIBACTER ACTINOMYCETEMCOMITANS IN ANTI-CCP POSITIVE INDIVIDUALS AT-RISK OF INFLAMMATORY ARTHRITIS

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Background: The prevalence of periodontal disease is increased in RA, and periodontitis is associated with the bacterium *Porphyromonas gingivalis* (Pg), which can citrullinate arginine residues.¹ These observations suggest periodontitis may be a key initiator of RA-related autoimmunity. Importantly, clinical periodontal disease, and the relative abundance of periodontal bacteria have not been described in seropositive individuals at risk of developing RA who do not have synovitis.

Objectives: To investigate the prevalence of periodontal disease and the relative abundance of key periodontal bacteria in anti-CCP positive at-risk individuals without synovitis.

Methods: Anti-CCP positive individuals with musculoskeletal symptoms but no clinical synovitis (CCP+), early RA (RA) patients and healthy controls (HC) were recruited. CCP +underwent a 38 joint ultrasound (US) assessment. Periodontal examination was performed by a dentist; six sites per tooth were assessed for clinical attachment level (CAL), pocket depth (PD) and bleeding on probing (BOP). Periodontal disease sites (PDD) were defined as CAL $\geq$ 2 mm and PD $\geq$ 4 mm. A clinical consensus was agreed for each case by three dentists. DNA, isolated from subgingival plaque from diseased and healthy periodontal sites, was pair-end sequenced (Illumina HiSeq3000). Taxonomic and functional profiles were obtained from MG-Rast and differences between groups studied using DESeq2. Mann-Whitney U tests were used to compare groups and Spearman Rho used for correlations. For metagenomic data, Wald test was used to compare relative abundance.

Abstract OP0352 – Figure 1 Relative abundance of *Aggregatibacter actinomycetemcomitans* (Aa) and *Porphyromonas gingivalis* (Pg) according to RA status and extent of periodontal disease

Results: 48 CCP+, 26 RA and 32 HC were recruited. Groups were balanced for age, sex and smoking. All but 2 (96%) CCP +had no US synovitis (greyscale $\geq$ 1 and power Doppler $\geq$ 1). Dentists classified 73% CCP+, 38% HC (p=0.02) and 54% RA as having clinical periodontitis. The percentage of periodontal sites with CAL $\geq$ 2 mm, PD $\geq$ 4 mm, BOP, PDD and active PDD (PDD +BOP) were all greater in CCP +compared to HC (p<0.05) and similar to RA. In non-smokers, PDD and active PDD were more prevalent in CCP +compared to HC. Metagenomic data indicated CCP +had increased relative abundance of both Pg

and *Aggregatibacter actinomycetemcomitans* (Aa) compared to HC (p<0.001) and RA (p<0.01). However, clinical periodontitis was only associated with increased relative abundance of Pg (p<0.001) but not Aa. Furthermore, the relative abundance of Pg was associated with the percentage of sites with active PDD in CCP+ (p=0.05) and HC (p=0.04) but this was not seen for Aa (figure 1).

Conclusions: We report an increased prevalence of periodontal disease, Pg and Aa in anti-CCP positive at-risk individuals without synovitis. Interestingly, relative abundance of Pg, but not Aa, was associated with periodontitis, suggesting potential mechanistic differences that require further exploration. These data support the concept that periodontal inflammation and periodontopathic bacteria may both be important in the initiation of RA-related autoimmunity.

REFERENCE:

[1] Lundberg K. Nat Rev Rheumatol 2010.

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Multi-disciplinary management of complex persistent pain_____

OP0353-HPR

THE EFFECTS OF ARTHRITIS GLOVES ON HAND PAIN IN PEOPLE WITH RHEUMATOID OR INFLAMMATORY ARTHRITIS: A RANDOMISED CONTROLLED TRIAL (A-GLOVES TRIAL)

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Background: Arthritis (compression) gloves are commonly provided to people with rheumatoid arthritis (RA) and undifferentiated inflammatory arthritis (IA) in the UK health service. These apply pressure and warmth to relieve hand pain, stiffness and improve hand function. A systematic review identified little evidence to support their use.¹

Objectives: This randomised controlled trial tested effectiveness and cost-effectiveness of mid-finger length compression (intervention) gloves (20% Lycra: commonest glove model provided) with control gloves (i.e. oedema gloves: 11% Lycra: fitted at least one size too big) in people with RA and IA.

Methods: Both gloves, which had similar thermal qualities although the control gloves did not provide compression, were provided by rheumatology occupational therapists, following training.² Participants were also given brief advice on hand exercise and joint protection. Adults with RA/IA and persistent hand pain were randomised 1:1 to the two glove types, stratified by disease modifying anti-rheumatic drug (DMARD) change in previous 12 weeks. The primary outcome was dominant hand pain on activity Visual Analogue Scale (VAS:0–10); other outcomes included night hand pain, hand stiffness (both 0–10 VAS); Measure of Activity Performance Hand (MAP-HAND: 0–3). Multiple linear regression was undertaken to estimate the effect of group allocation on hand pain during activity, adjusting for the stratification variable and baseline values. Cost-effectiveness used individual patient level costs (intervention plus healthcare utilisation) and health benefit data (EQ-5D) to calculate costs and QALYs.

Results: 206 participants were randomised (103 to each glove type): median age 59 years [IQR 51,67]; women:166 (81%); mean disease duration: 8.2 (SD 9.5) years; employed:76 (37%); right hand dominant:185 (90%). Of these, 163 (79%) completed 12 week follow-up questionnaires. Both groups reported similar adherence to glove wear (mean 5.2 days/week). At 12 w, hand pain scores in both groups similarly improved: the between-groups mean difference of 0.1 was not statistically significant (95% CI: -0.47 to 0.67;p=0.72). There were no significant differences between groups on any measures, with both groups improving similarly between baseline and 12 w. 73% in both groups considered gloves beneficial. Intervention gloves had higher costs (£552 (SD £464); control £391 (SD £543) but comparable benefits to control gloves. Intervention gloves would cost £83 700 to gain one QALY and were not likely to be cost-effective.

Conclusions: Compression (intervention) and loose-fitting arthritis (control) gloves had similar effects on hand pain, stiffness and function. Therefore, compression is not the 'active ingredient' in arthritis gloves. Loose fitting gloves providing warmth were perceived as equally effective by participants. We do not know if the therapist effect is important or whether ordinary gloves providing warmth would provide similar results.

REFERENCES:

[1] Hammond, et al. Clin Rehabil 2016 30:213–24.

[2] Prior, et al. Rheumatology 2017. www.abstractsonline.com/pp8/#!/4205