THU0123 NEW PERSPECTIVES IN DIAGNOSIS OF INTERSTITIAL LUNG DISEASE RELATED TO RHEUMATOID ARTHRITIS. VALIDATION STUDY OF AN ELECTRONIC STETHOSCOPE AND AD HOC SOFTWARE FOR DETECTION OF PULMONARY CRACKLES

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Background: Rheumatoid arthritis (RA) is a chronic inflammatory disease characterized by synovial joint swelling and tenderness, secondary to the immune-system dysfunction, often complicated by extra-articular manifestations. Among them, lung involvement is very frequent and interstitial lung disease (ILD) represents one of the deleterious complications of RA with impact on both therapeutic approach and overall prognosis. Nevertheless, diagnosis of ILD often remains missing or delayed.
Objectives: To preliminarily evaluate the predictive value of pulmonary sound recorded by an electronic stethoscope (ES) and elaborated by an ad hoc software in identification of RA-ILD diagnosed by mean of high resolution computed tomography (HRCT) in a multicenter study.
Methods: RA patients who underwent HRCT in the last 12 months were enrolled. They were all auscultated with the ES (Littmann 3200^{TM} 3M, USA), bilaterally, at dorsal level, in at least 3 pulmonary fields (medium and basal). All tracks recorded were analyzed by a suitably developed software capable of recognizing pathological crackles in lung sounds. Results were compared with radiologic findings detected in a blind manner by an expert radiologist.
Results: One hundred and six RA patients were enrolled (M/F: 1/2.5, mean age 68.7±10.3); among them 45 (42.5%) showed ILD at HRCT. Three patients were excluded because of a low quality of the sound recorded. The algorithm showed a sensitivity and specificity of 72.1% and 84.4%, respectively and a positive/negative predictive value of 69.1% and 86.3%, respectively.
Conclusions: Despite preliminary, these data suggest an important role of ES in clinical practice for an early diagnosis of ILD in RA patients and a significant reduction of inappropriate prescription of HRCT. Since very different types of ILD can occur in course of RA, with different radiologic features and localization, proper development of the measurement setup (ES and ad hoc software for the detection of PC) could further increase its predictive value, in particular to avoid incorrect records and misdiagnosis. The routinely employment of ES and proper software, combined to clinical findings (cough, dyspnea) and respiratory lung function, could increase our ability to early identify ILD in RA patients.
Disclosure of Interest: None declared
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THU0124 OCCUPATIONAL EXPOSURE TO ASBESTOS AND RISK OF RHEUMATOID ARTHRITIS

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Background: Airborne agents are considered important environmental triggers of rheumatoid arthritis (RA) among genetically susceptible individuals. Due to the known association between silica dust and RA, we wanted to study the association between RA and another silicate mineral; asbestos.
Objectives: The aim of this study was to estimate the risk of RA from ever occupational asbestos exposure as well as years with exposure among men and women.
Methods: The study base consisted of men and women living in Sweden from 1968 until 2012. RA patients were identified from the National Patient Register, the Swedish Rheumatology Register (SRQ), the Swedish population-based case-control study EIRA or the Swedish Prescribed Drug Register. We matched ten controls from the national population register per case on age, county and sex. Data on occupational histories were collected from the national population and housing censuses carried out in 1960, 1970, 1975, 1980 and 1990. A job-exposure matrix (JEM) containing historical exposure estimates from 1955–1995 to asbestos was applied to the study participants' occupational histories.
We used unconditional logistic regression to assess the odds ratios (ORs) and 95% confidence intervals (CIs) of RA associated with ever exposure and years of exposure to asbestos. ORs were adjusted for ever exposure to silica dust, which was also generated from a JEM. One of the data sources (EIRA) contained self-reported information on potential confounders. Analyses on this data source were carried out to estimate the confounding effect from pack-years of cigarette smoking and alcohol use.
Results: 167 143 cases and 1 701 200 controls were included in the analysis. The proportion of participants who had ever worked with asbestos was 38% among male cases, 35% among male controls, 3% among female cases and 3% among female controls.
Ever vs. never asbestos exposure resulted in an OR of 1.15 (95% CI: 1.13–1.17) among men and 1.00 (95% CI: 0.96–1.04) among women. The ORs decreased to 1.09 (95% CI: 1.07–1.12) and 1.00 (95% CI: 0.96–1.04) for men and women respectively after adjusting for silica exposure. Asbestos exposed men were more likely than women to have worked with asbestos for a longer period of time, but the risk of RA did not appear to increase with years with the exposure. Male participants with 30 or more years of asbestos exposure at work had an OR of 1.10 (1.02–1.19) after adjustment for silica exposure.
1,882 male and 4,107 female study participants belonged to the EIRA study and had complete information on potential confounding factors. The OR among men went from 1.61 (95% CI: 1.32–1.97) to 1.35 (95% CI: 1.08–1.70) when we additionally adjusted for silica exposure, pack-years of smoking and alcohol use. Among women the OR went from 1.34 (95% CI: 0.93–1.93) to 1.07 (95% CI: 0.73–1.57). Risks were higher for the ACPA- RA subtype, with adjusted ORs of 1.63 (95% CI: 1.18–2.24) for men and 1.14 (95% CI: 0.66–1.98) for women.
Conclusions: Asbestos exposure is associated with RA among men, and mainly the ACPA- RA subtype. The increased risk remained after adjustments for potential confounders.
Disclosure of Interest: None declared
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THU0125 PROGRESSION OF SUBCLINICAL ATHEROSCLEROSIS OVER ELEVEN YEARS IS INCREASED IN PATIENTS WITH EARLY RHEUMATOID ARTHRITIS

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Background: Patients with rheumatoid arthritis (RA) have an increased mortality and morbidity due to cardiovascular disease (CVD).
Objectives: In this prospective follow up over eleven years, we investigated the progression of atherosclerosis measured by intima media thickness (IMT), in relation to traditional CVD risk factors and inflammation, in patients with early RA compared to controls.
Methods: Patients from northern Sweden diagnosed with early RA are consecutively recruited into an ongoing prospective study. A subgroup aged $\leq$60 years (n=54) was consecutively included for ultrasound measurements of IMT of a. Carotis communis at inclusion (T0), and after 11 years (T11). 31 age-sex-matched controls were included. The patients were clinically assessed, SCORE, Reynolds Risk Score and Larsen score were calculated and blood samples drawn from all individuals at T0 and T11. Data and results presented in this abstract are preliminary.
Results: Patients with RA as well as controls had a significant aggravation in IMT over 11 years (0.52 at T0 and 0.68 at T11 in RA: $p<0.001$; 0.54 at T0 and 0.63 at T11 in controls: $p<0.05$; IMT in RA vs controls at T0 and at T11: $p>0.05$). The patients with RA had a significantly higher progression in IMT from T0 until T11 (0.16 vs 0.08, $p<0.001$). In simple linear regression analyses among RA-patients, the IMT at T11 was significantly associated with several variables at T0: age, systolic blood pressure, SCORE, Reynolds Risk Score, tPA, L-selectin (inversely), MCP-1 and Larsen score. The progression in IMT over 11 years was associated with age and Larsen score at T0.
Conclusions: In this prospective study, the progression of sub-clinical atherosclerosis over 11 years was significantly higher in patients with RA than in controls. The IMT at T11 was associated with several traditional cardiovascular risk factors, as well as disease severity, at time of diagnosis.
Disclosure of Interest: None declared
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THU0126 THE EFFECT OF GLUCOCORTICOIDS ON BONE MINERAL DENSITY IN PATIENTS WITH RHEUMATOID ARTHRITIS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Background: The role of glucocorticoids (GCs) in the treatment of rheumatoid arthritis (RA) is widely debated. GCs stimulate bone resorption and impair bone formation (1). Inflammatory cytokines also stimulate bone resorption, and patients with RA have a high risk of osteoporosis (OP) and fragility fractures (2). However, in patients with RA, impairment of bone formation by GCs may be counter-balanced by reduced systemic inflammation and increased physical activity.
Objectives: This systematic review aims to assess the effect of oral prednisolone and prednisone on bone mineral density (BMD) in patients with RA analyzed in randomized, controlled trials (RCT).
Methods: We performed a systematic literature search and identified double-blinded RCTs comparing prednisolone or prednisone with placebo and measuring

BMD dual-energy absorptiometry at baseline and at least once thereafter. Two authors independently reviewed references, extracted data and assessed risk of bias. We assessed quality of evidence using the GRADE methodology. Primary outcomes were mean change in BMD at the hip and lumbar spine. Secondary endpoints included RA disease activity and radiographic progression.
Results: We identified 7 studies. Studies were comparable regarding study population and intervention. Risk of bias was considered low for BMD outcomes. Data completeness was low in some studies. We found no statistically significant difference in change in BMD from 0 to 24 months neither at the lumbar spine (Standard Mean Difference (SMD) 0.02 (95% CI -0.16, 0.12)) nor at the hip (SMD -0.11 (95% CI -0.25, 0.02)). Disease activity was significantly lower in the GC groups (mean difference in DAS28 -0.32 (95% CI -0.52, -0.11). Concomitant treatment of RA differed between studies, as did OP prophylaxis. However, sensitivity analyses excluding a study with different distribution of OP prophylaxis between groups receiving GCs or placebo did not alter the estimates. Quality of evidence was rated moderate for BMD outcomes.
Conclusions: In this group of double-blinded RCT studies we found no difference in change in BMD in patients with RA who received GCs compared to those who received placebo. The interpretation of this is difficult as it challenges the well-established fact that GCs negatively impact BMD. However, our findings suggest that in a population with early RA, followed for two years, the dampening of inflammation as well as increased physical activity may outweigh the inherent effects of GCs. This concurs with our finding of lower disease activity in the groups receiving GCs.
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THU0127 THE DYNAMICS OF MENTAL DISORDERS FREQUENCY IN COMPLEX DMARDS, BIOLOGICS AND ANTIDEPRESSANTS TREATMENT OF RHEUMATOID ARTHRITIS PATIENTS

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Background: mental disorders (MD) (anxiety/depressive (ADD) and cognitive (CD)) occur in rheumatoid arthritis (RA) patients (pts) very often, they are usually stress-related and, probably, have common pathogenesis chains with RA. In this connection the disease-modifying anti-rheumatic drugs (DMARDs) and biologics drugs treatment may be effective in ADD in RA-pts.
Objectives: to determine the frequency of MD dynamics during DMARDs, biologics and antidepressants treatment of RA-pts in prospective 5yrs study.
Methods: 128 RA-pts were enrolled in this study. All of them met the full ACR criteria. 86% RA-pts were women with a mean age of 47,4±1,0 (M±m) yrs. RA activity was assessed by DAS28 and was high (5,25±0,17 (M±m)) in the beginning of the study. 67% RA-pts were taking prednisone (5±2,7 mg/day),80% RA-pts - DMARDs, 26% - biologics (rituximab – 11%, anti-TNF-α – 10%, anti-IL6 – 5%). MD were diagnosed by psychiatrist in accordance with the ICD-10 in semi-structured interview. The severity of depression and anxiety was evaluated by Montgomery–Asberg Depression Rating Scale (MADRS) and Hamilton Anxiety Rating Scale (HAM-A). CD were diagnosed with psychology and neuropsychology methods. ADD were diagnosed in 121 (94,5%) and CD – in 87 (67,9%) of RA-pts. Major depressive disorder (MDD) was found in 41 (32%), minor depressive disorder (MinDD) – in 50 (39%) and anxiety disorders (AD) – in 30 (23,4%) of RA-pts. The occurrences of MD were evaluated in one and five yrs in 105 from 121 (87%) RA-pts divided into the following treatment groups: 1 – DMARDS (n=32), 2 - DMARDs + antidepressants (sertraline or mianserine) (n=37), 3 – DMARDs + biologics (n=27), 4 - DMARDs + biologics + antidepressants (sertraline or mianserine) (n=9).
Results: *Group 1:* the frequency of MDD was increased from 24,6% to 34,8% in a year and to 42,8% in 5 yrs (p=0,09); MinDD – from 47,8% to 60,8% (p=0,19) and 50% in 5 yrs; the number of pts with AD decreased from 27,5% to 4,3% (p=0,014) and 4,8% (p=0,021) accordingly. The frequency of CD was increased from 64,3% to 78,3% (p=0,16) in 5 yrs. *Group 2:* the frequency of MDD was decreased from 47,4% to 15,7% (p=0,049) in a year and to disappearance of depressive symptoms (p<0,001) in 5 yrs; MinDD – from 26,3% to 15,8% and to disappearance (p<0,001) in 5 yrs; AD – from 26,3% to 10,5% and to disappearance (p<0,001) in 5 yrs. The frequency of CD was decreased from 78,9% to 60% (p=0,25). *Group 3:* the frequency of MDD was unchanged (40,7%, 45,4% and 42,8% accordingly); the frequency of MinDD was increased not significantly – 40,7%, 40,9% and 52,4%; but AD – was significantly decreased (from 18,5% - to disappearance in a year (p=0,042) and 5 yrs (p=0,047)). The frequency of CD was increased from 77,8% to 85%. *Group 4:* the frequency of MDD was decreased significantly from 66,7% to 16,7% in a year and to disappearance in 5 yrs (p=0,03); MinDD and AD were decreased from 16,7% both to disappearance. The occurrence of CD was decreased from 71,4% to 57,1%.
Conclusions: the results demonstrated the best positive dynamics of MD (ADD and CD) frequency in the groups of RA-pts receiving antidepressants treatment in combination with DMARDs and biologics. There was no positive dynamics of MD in patients group receiving DMARDs and mild positive dynamics of AD in the group receiving biologics.
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THU0128 FEATURES OF ULTRASOUND DOPPLEROGRAPHY IN PATIENTS WITH RHEUMATOID ARTHRITIS AND SUBCLINICAL HYPOTHYROID DYSFUNCTION

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Background: Now it is proved that the leading reason for the decline in life expectancy in patients with rheumatoid arthritis (RA) are cardiovascular (CV) disease. The increase in CV risk in patients with RA is associated with increased progression of atherosclerotic vascular lesions. Autoimmune inflammatory process in RA affects the vascular endothelium contributes to the appearance of CV events and increased mortality of patients with RA. It is known that when SHTD increased levels of proinflammatory cytokines. Also, when there is an increase SHTD thickness complex intima-media (CIM)
Objectives: To study the characteristics of ultrasound dopplerography in patients with RA with SHTD
Methods: The observation 139 patients with RA. The I group consisted of 91 patients with RA and SHTD, the II - 48 patients with RA without SHTD. Patients in group I and II did not differ significantly by age and duration of RA. Detection of endothelial dysfunction was performed using ultrasound dopplerography vessels in accordance with international guidelines
Results: In the study of endothelial regulation of vascular tone in both groups of patients revealed the presence of disturbances, as determined signs of reduced endothelium-dependent vasodilation (EDVD) and endothelium-independent vasodilation (EIVD) compared with regulatory measures, which EDVD brachial artery (BA) is greater than or equal to 10% and EIVD BA - 15%. Defined EDVD significant decrease in group II, in contrast to the I (T=4.5, p<0.001), which amounted to 8.3±3.0% and, respectively 10.6±2.1%. EIVD figure was in group II 12.9±3.8%, and in the I – 15.4±1.5%, which also had significant differences (T=4.5, p<0.001) (Table 1).

Table 1

Indicators	I group (n=48)	II group (n=91)	p
D_0, cm	3.8 (3.7; 3.9)	3.9 (3.7; 4.2)	0.16
D_1, cm	4.3 (4.1; 4.5)	4.3 (4.0; 4.5)	0.83
D_2, cm	4.5 (4.3; 4.7)	4.5 (4.2; 4.7)	0.09
V_0, cm/s	55.6 (52.6; 61.1)	52.6 (44.2; 58.2)*	0.002
V_1, cm/s	76.1 (71.6; 79.6)	70.8 (62.6; 76.6)*	<0.001
EDVD, %	10.6±2.1	8.3±3.0*	<0.001
EIVD, %	15.4±1.5	12.9±3.8*	<0.001
CIM, mm	0.73 (0.71; 0.79)	0.97 (0.95; 1.0)*	<0.001
C	0.45 (0.34; 0.71)	0.26 (0.18; 0.46)*	0.002

Note: * p<0.05.

It is also a distinction between the two groups in terms of the thickness of the CIM (Z=9.7, p<0.001), exceeding in group II. Determined a significant decrease in the coefficient of sensitivity to endothelial shear stress (C) in patients with RA, who was in I group of 0.45 (0.34; 0.71), and in II - 0,26 (0.18; 0.46) that there was a statistical difference in this index between the groups of patients (Z=3.6, p<0.001) due to a significant reduction in patients of group II.
The performed analysis of variance indicated that there SHTD influence on the development of disorders of vascular endothelial function in motor RA patients. The SHTD presence in group II patients significantly affected the reduction EDVD, EIVD, C (H=13.8, p<0.001; H=14.5, p<0.001; H=10.2, p=0.001).
Conclusions: The analysis indicated the presence of influence SHTD on the development of disorders of vascular-motor endothelial function in RA patients. These data show that the presence SHTD patients with RA leads to a significant increase in the risk of developing CVD. This requires a more careful study of RA patients for early detection and correction of comorbidities that worsen the clinical course of RA
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