Methods: A total of 141 patients (103 female, 38 male) who were diagnosed RA according to ACR (American College of Rheumatology) diagnostic criteria were included in the study. Fatigue Symptom Inventory (FSI) was used for evaluation of fatigue. While the disease activity was determined using the Disease Activity Score-28 (DAS28), the Health Assessment Questionnaire (HAQ) was used to determine the functional status. The pain intensity was determined using 10 cm Visual Analogue Scale-Pain (VAS-pain).
Results: The mean age of the patients is 54.67±10.70 years and the mean duration of illness is 14.31±10.89 years. When the relationship between fatigue and other factors was examined, a statistically significant relationship was found between FSI fatigue severity scores (maximum, minimum, mean, current), FSI duration scores (number of days felt tired, amount of time felt tired), FSI interference score and HAQ, number of swollen joints, number of tender joints, VAS rest and VAS motion values ($p<0.05$). There was a statistically significant lower correlation between FSI fatigue severity scores (at least, mean) and DAS28 (r: 0.216, r: 0.181, respectively). There was no significant relationship between FSI scores and age, duration of illness, steroid use
Conclusions: Fatigue affects patients independently of disease duration in patients with RA. Fatigue is associated with disease activity, functional status, and pain. For this reason, fatigue in RA patients should be considered as an important symptom that should not be overlooked and should be struggled.
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FRI0145 DOES PAIN HAVE INFLUENCE ON HEALTH ASSESSMENT QUESTIONNAIRE DISABILITY INDEX (HAQ-DI) IN RHEUMATOID ARTHRITIS PATIENT? AN ATTEMPT TO EVALUATE EFFECTIVENESS OF PAIN VAS (PS-VAS) ON HAQ-DI IN REAL CLINICAL PRACTICE –

I. Yoshii[1], T. Chijiwa[2]. [1]*Rheumatology, Yoshii Hospital, Shimanto City;* [2]*Rheumatology, Kochi Memorial Hospital, Kochi, Japan*

Background: Health Assessment Questionnaire Disability Index (HAQ-DI) is the most important index in treatment for rheumatoid arthritis (RA) patient. HAQ-DI expresses patient's disability in daily life (ADL), and this is influenced by disease activity (ACT-HAQ) and joint structural damage (DAM-HAQ), and aging when patient gets older in senectitude (AGE-HAQ) (1–3). One more factor that possibly makes influence on HAQ-DI is patient's pain. However, this problem is not discussed at all.
Objectives: We have investigate patient's pain and its effect on HAQ-DI in our clinical data in order to evaluate whether pain influences on HAQ-DI, and to make assessment existence of pain related HAQ-DI (PAIN-HAQ)
Methods: RA patients who have been treated continuously for more than five years, who had visited later than October 31th, 2016, were picked up in this study. Patients average 28-joints disease activity score with C-reactive protein (DAS28-CRP), modified HAQ (mHAQ), Sharp/van der Heijde Score (SvdHS), age, and pain score calculated by visual analogue scale (PS-VAS) were calculated in fifth treatment year. Average values of these parameters have been calculated. Relationships among these factors have been investigated statistically using multiple linear regression analysis (MLR). After evaluation of relationship of each pairs of these factors, the relationship between HAQ-DI and the other factors had been evaluated from modified data of these patients in minimize the effect of parameters other than PS-VAS and data that minimized effectiveness of PS-VAS with MLR.
Results: 382 patients had been picked up. Their sex distribution was 87 for male and 295 for female, and their average values and standard deviations of age, DAS28-CRP, HAQ-DI, SvdHS, and PS-VAS were 68.99 and 13.47, 1.91 and 0.54, 0.43 and 0.55, 54.97 and 67.30, and 22.96 and 17.85, respectively. HAQ-DI demonstrated significant regression with all of DAS28-CRP, SvdH, age, and PS-VAS (<0.01). DAS28-CRP demonstrated positive correlation with PS-VAS, HAQ-DI, and SvdHS, but negatively correlated significantly with age (<0.01). PS-VAS demonstrated positive correlation with HAQ-DI and DAS28-CRP, but negatively correlated with SvdHS significantly (<0.01), while no significant correlation demonstrated with age. SvdHS demonstrated positive correlation with DAS28-CRP and HAQ-DI, but negative correlation with PS-VAS significantly (<0.01), while no significant correlation demonstrated with SvdHS. Age demonstrated positive correlation with HAQ-DI, but negatively correlated with DAS28-CRP (<0.01), while no significant correlation demonstrated with PS-VAS and SvdHS (Figure 1).
After minimizing the data effectiveness of DAS28-CRP, Age, and SvdHS on HAQ-DI, HAQ-DI demonstrated significant regression only with PS-VAS. When the effectiveness of PS-VAS was minimized, HAQ-DI demonstrated significant regression with parameters other than PS-VAS. Threshold of PS-VAS was 15mm.

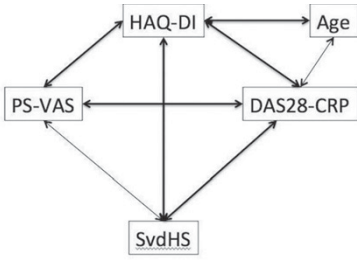

Figure 1: Schematic relationship among HAQ-DI, DAS28-CRP, SvdHS, Age, and PS-VAS. Thick lines demonstrate significant positive correlations, and thin lines demonstrate significant negative correlations.

Conclusions: These results suggested that HAQ-DI is influenced PS-VAS when it is no less than 15mm. Therefore, we conclude that HAQ-DI consists with PAIN-HAQ in adding with ACT-HAQ, DAM-HAQ, and AGE-HAQ.
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FRI0146 ANTI-ELASTIN AND ANTI-ELASTASE AUTOANTIBODIES: POTENTIAL CLINICAL AND DIAGNOSTIC IMPLICATIONS IN RHEUMATOID ARTHRITIS

N.V. Nenasheva[1], A.S. Trofimenko[1,2], I.P. Gontar[1], L.A. Maslakova[1], O.A. Rusanova[1], O.V. Paramonova[2]. [1]*Research Institute for Clinical and Experimental Rheumatology;* [2]*Volgograd State Medical University, Volgograd, Russian Federation*

Background: Elastin is an ubiquitous molecule, presented in connective tissue matrix, including skin, ligaments, lungs, and blood vessels. Elastase is a characteristic protease, considerably presented in neutrophils and in pancreas. Autoantibodies (Ab) to elastin and to elastase are promising candidate biomarkers in rheumatoid arthritis (RA).
Objectives: To explore potential clinical and diagnostic utility of anti-elastin and anti-elastase Ab in RA.
Methods: The research was carried out in agreement with the WMA Declaration of Helsinki principles and was approved by Volgograd Regional Committee on Medical Ethics. All the patients signed the informed consent. We enrolled 106 adult patients with definite RA in Volgograd Municipal Hospital #25, the diagnosis have been established using ACR-EULAR criteria (2010). For ROC analysis calculations we used mixed control group consisted of 19 patients with ankylosing spondylitis, 32 with gout, 11 with psoriatic arthritis, and 22 with reactive arthritis. Serum anti-elastin and anti-elastase Ab concentrations were evaluated by ELISA, using antigens immobilized on magnetic polyacrylamide beads, which were previously described by our group [1]. Antibody concentrations were expressed as relative optical density units (ODU). The cutoff values for anti-elastin and anti-elastase Ab presence were 0.104 and 0.113 ODU, respectively; the calculations were performed using 34 healthy control sera. All the means and operation characteristics were expressed as values (95% confidence intervals). Differences were considered significant when $p<0.05$.
Results: In RA anti-elastin Ab were found in 37 (34.9%) patients, and the mean concentration was 0.128 (0.118–0.138) ODU. There was no significant correlation between DAS28 and anti-elastin concentrations, but the least marker was increased in patients with heart and kidney involvement, as well as in vasculitis patients, comparing to those who have no such manifestations (p=0.017, 0.046, and 0.009, respectively). We detected 58 (54.72%) anti-elastase positive RA patients, with the mean concentration 0.137 (0.103–0.171) ODU. Anti-elastase positive patients had significantly increased frequencies of anemia (p=0.025) and vasculitis (p=0.017) comparing to the negative subgroup. The prevalence of anti-elastase Ab was also increased along with RA activity. Concentrations of these two Ab were positively correlated (r=0.866, $p<0.001$).For anti-elastin Ab assay (cutoff point 0.112 ODU) diagnostic sensivity in RA patients was 72 (62–87)%, specificity 50 (41–64)%, AUC of ROC curve 0.703 (0.590–0.797). For anti-elastase Ab assay (cutoff point 0.115 ODU) the respective values were 77 (62–87)%, 81 (59–91)%, and 0.822 (0.675–0.923).
Conclusions: Anti-elastin and, increasingly, anti-elastase antibodies are valuable candidate markers to improve diagnosis of RA and, particularly, rheumatoid vasculitis and heart involvement. Further investigations are needed to assess sensivity and specificity of these markers being included in the comprehensive diagnostic algorithms.
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Disclosure of Interest: None declared

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FRI0147 ANTI-MÜLLERIAN HORMONE LEVELS IN FEMALE RHEUMATOID ARTHRITIS PATIENTS TRYING TO CONCEIVE – THE ROLE OF OVARIAN FUNCTION IN TIME TO PREGNANCY IN A NATIONWIDE COHORT STUDY

J. Brouwer[1,2], J.S. Laven[1], J.M. Hazes[2], J.A. Visser[3], R.J. Dolhain[2]. *[1]Division of Reproductive Medicine - Department of Obstetrics & Gynaecology; [2]Department of Rheumatology; [3]Department of Internal Medicine, Erasmus MC University Medical Center Rotterdam, Rotterdam, Netherlands*

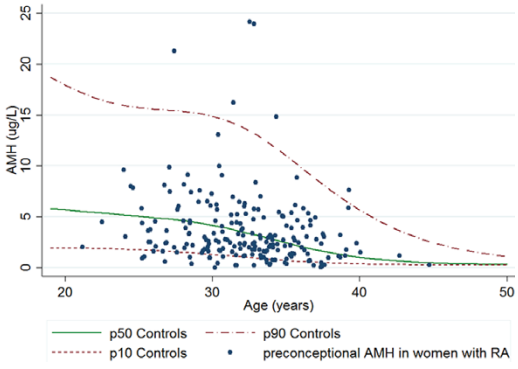
Background: Subfertility, a time to pregnancy (TTP) >12 months, is present in 40% of women with rheumatoid arthritis (RA) actively trying to conceive.[1] Since RA patients appear to reach menopause at a younger age[2], the reduced fertility may be caused by a lower ovarian reserve (OR). Serum anti-Müllerian hormone (AMH) levels are currently the most reliable way to measure the OR.

Objectives: Our objective was to study preconception AMH levels and their association with TTP in women with RA.

Methods: A post-hoc analysis was performed in patients of the Pregnancy-induced Amelioration of RA (PARA) cohort who were visited preconceptionally. Serum AMH levels were measured using the pico AMH ELISA assay (Ansh Labs, Texas, USA), and compared to converted[3] AMH values from a cohort of 554 healthy adult controls[4].

Results: Preconception serum was available in 209 women aged 32.1±3.9 years, of whom 45% were subfertile. The median AMH level was 2.5 ug/L (IQR 1.5–4.6). AMH levels were significantly lower compared to healthy controls ($p<0.001$), with 17.2% (95% CI 10.7 – 23.8%) of patients having levels below the age-specific 10th percentile.

Log-transformed AMH levels were negatively associated with age (-0.070 (95% CI -0.11;-0.031), p=0.001), and with the presence of anti-citrullinated protein antibodies (ACPA) (-0.38 (95% CI -0.71;-0.056), p=0.022). The associations remained significant in the multivariable analyses. AMH levels showed no significant association with TTP (HR 1.09 (95% CI 0.94;1.27), p=0.26).



Conclusions: Women with RA have lower AMH levels than healthy controls. Reduced AMH levels were more pronounced in ACPA positive patients, suggesting that the OR may be compromised more strongly in patients with a more severe disease. However, since preconception AMH levels were not associated with TTP, the reduced levels do not explain the reduced fertility in women with RA.

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FRI0148 THE EFFECT OF TNF INHIBITORS, METHOTREXATE (MTX), AND THE OTHER DMARDS THERAPIES ON DIABETIC CONTROL IN PATIENTS WITH RHEUMATOID ARTHRITIS (RA): TREATMENT WITH MTX ALONE IMPROVED DIABETES CONTROL MORE THAN TNF INHIBITORS PLUS MTX

K. Fujioka, M. Tangiku, M. Fuwa, I. Mori, T. Ishizuka. *Center of General Internal Medicine and Rheumatology, Gifu Municipal Hospital, Gifu City, Japan*

Background: It has been shown that inflammation directly influences insulin and glucose metabolism through cytokines such as TNFα and IL-6. It has also been reported that certain RA drugs such as TNF inhibitors, hydroxychloroquine, and MTX were associated with lower diabetes risk among people with RA, but it is still clinically unknown. On the other hand, it has been shown that MTX is involved in activation of intracellular AMP-kinase and promotes glucose uptake in skeletal muscle (Diabetes, 2015).

Objectives: We examined medical records of patients with new RA patients complicated with glucose intolerance to measure in HbA1c, body weight, and DAS28-ESR for 6 and 12 months treated with TNF inhibitors, MTX, and the other DMARDs.

Methods: Newly registered 20 RA patients complicated with glucose intolerance (HbA1c ≥5.6%) at our hospital from May 2013 to December 2015, have treated with as follows; Treatment with infliximab (1 case), golimumab (3 cases), and etanercept (2 cases) in combination with 4–12mg/week of MTX (group A: 6 cases, TNF inhibitors + MTX), MTX (4–10 mg/week) alone (group B: 8 cases MTX alone). The other DMARDs (group C: 6 cases, the other DMARDs including bucillamine (BCL) + salazosulfapyridine (SASP) + tacrolimus (TAC); 1case, BCL+SASP; 1case, BCL alone; 2 cases and SASP alone; 2 cases) had been registered. We have compared the changes of HbA1c levels, body weight, DAS 28-ESR from the beginning of the treatments and 6 and 12 months later. RA patients treated with glucocorticoid were excluded. Diabetic treatment were diet and exercise in all cases, but metformin (500 mg) and DPP4 inhibitor were used in 4 cases (Group A and C). However, each patient in Group B did not use antidiabetic agents. We analyzed these results with paired and unpaired *t* test using JMP12.2.0.

Results: These registered RA patients with female were 60.0%. The mean age were 62.1, 53.5 and 63.8 for group A, B, and C, respectively. There were significant changes in DAS28-ESR after treatment for 6 months in group A and B, respectively ($p<0.01$ in group A and $p<0.05$ in group B).

Groups A and B showed significant improvement of DAS 28-ESR after treatment with 12 months ($P<0.0001$ in group A, $p<0.01$ in group B), but no significant difference of DAS28-ESR in group C was observed. The mean reduction in HbA1c showed a significantly decreases only in the group B ($P<0.01$). There were no significant differences in body weight between the each group, but slightly an increase in body weight was observed in group B. There were no significant correlations between body weight and DAS28-ESR and its changes.

Conclusions: In this study, MTX was thought to contribute not only to suppress chronic inflammation but also to improve the glucose tolerance as compared with TNF inhibitors plus MTX and the other DMARDs. Further studies concerns about the interrelationship between glucose tolerance and RA treatments may require.

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Disclosure of Interest: None declared

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FRI0149 DOES THYROXIN SUBSTITUTION PREDICT NON-RESPONSE TO METHOTREXATE IN EARLY RA?

K. Waldenlind[1], S. Saevarsdottir[1], C. Bengtsson[2], J. Askling[1]. *[1]Rheumatology Unit, Department of Medicine, Solna, Karolinska Institute; [2]Institute of Environmental Medicine, Karolinska Institute, Stockholm, Sweden*

Background: Response to treatment varies widely between RA-patients. Our means to predict disease course and treatment response is limited, leading to substantial over- as well as under- treatment. Whereas female gender and smoking have been identified as predictors of non-response, the impact of autoimmune co-morbidities remains largely unknown. Autoimmune thyroid disease (AITD) is one of the most frequent autoimmune diseases in the population. AITD is more prevalent in RA-patients and has also been identified as a risk factor for RA. AITD can be readily identified via thyroxin substitution. We aimed at assessing the impact of prevalent AITD in relation to 3- and 6-month EULAR response to methotrexate in early RA.

Objectives: To investigate whether thyroxin substitution impacts response to methotrexate as the first-line therapy in RA.

Methods: We identified patients with incident RA (symptom duration <1 year), included in the Swedish Rheumatology Quality Register, July 2006 through 2015 (n=7009). All patients starting treatment with methotrexate and who had a follow-up visit at 3 months (n=4364) and/or at 6 months (n=3148) were included. Prevalent AITD was defined as prescription of thyroxin substitution before RA-diagnosis (n=347), based on linkage to the Swedish Prescribed Drug register,