**Methods:** Retrospective review of cases of MAS from a collected database of fourteen children with SoJIA from 2003 to 2008. Gene-specific polymerase chain reaction (PCR) primers were used to analyze the perforin A91V gene polymorphism.
**Results:** Fourteen patients (nine boys) were considered to have evidence of MAS, with age ranged from 4 months to 12 years.The primary diagnosis was systemic onset juvenile idiopathic arthritis.No medication was identified as trigger. Eleven had infections prior to MAS,specific infectious agents were identified in four. High fever, new onset hepatosplenomegaly, lymphadenopathy, liver dysfunction,abnormal lipid metabolism and hemophagocytosis were common clinical features.Two cases were with acute respiratory distress syndrome (ARDS),multiple organ failure (MOF) in three and three died. The perforin A91V (NCBI:SNP rs35947132) variant gene was detected in seven systemic onset juvenile idiopathic arthritis compolicated with MAS cases, but no mutation were found. Glucocorticoid, intravenous immunoglobulin, immunoimpressive therapy were effective and HP (Plasmapheresis) used in one serious case was also effective.
**Conclusions:** MAS is a rare and potentially fatal complication of childhood rheumatoid diseases,especially systemic onset juvenile idiopathic arthritis. Most of our patients were male, and most cases were preceded by infection. Bone marrow studies support the diagnosis. MOF may be a poor prognostic sign.Aggressive early therapy is essential.
**Disclosure of Interest:** None declared
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## SAT0078 MAGNETIC RESONANCE IMAGING OF THE HANDS IN RHEUMATOID ARTHRITIS: UNILATERAL OR BILATERAL?

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**Background:** MRI had higher sensitivity of detecting inflammation than physical examination and higher sensitivity of detecting bone damage than X-rays. Physical examination and X-rays are usually performed on bilateral hands of RA patients, however, MRI evaluation of unilateral hand was recommended by OMERACT at the very beginning when RA MRI score (RAMRIS) was validated in the databases only consisting of images of dominant wrists and/or metacarpal phalangeal joints (MCPJs). Recently, high performance of whole-body MRI and multi-channel synergic coil enable simultaneous scan of bilateral hands.
**Objectives:** To explore the advantages of bilateral hands MRI on RA.

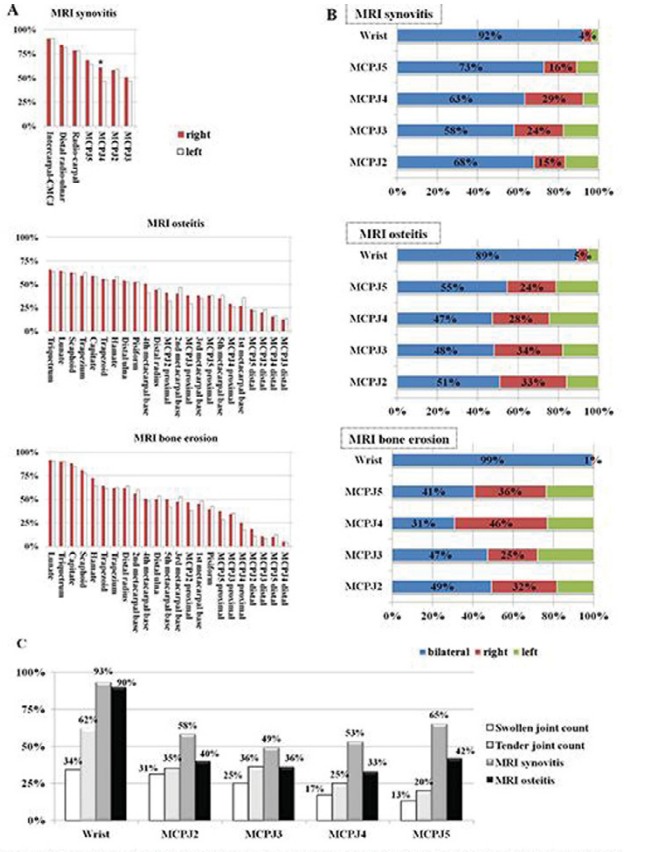


Figure 1 A: The frequencies of MRI synovitis, osteitis and bone erosion per joint or bone in the right and left hands of RA patients separately. B: The percentages of bilateral or unilateral involvement for each joint among patients with MRI synovitis, osteitis and bone erosion. C: The frequencies of joint swelling, tenderness, MRI synovitis and osteitis in wrists and MCPJ2~5 separately among 120 RA patients. MRI synovitis in the wrist included synovitis in distal radio-ulnar joint, radio-carpal joint and intercarpal-CMCJs. MRI osteitis in the wrist included osteitis in eight carpal bones, the distal radius, the distal ulna and five metacarpal bases. MRI osteitis in each MCPJ contained two parts: metacarpal head (proximal) and phalangeal base (distal). * p<0.05.

**Methods:** Consecutive hospitalized RA patients were recruited from April 2014 to April 2016 at Sun Yat-Sen Memorial Hospital, Sun Yat-Sen University. Together with assessing swelling and tenderness of 28 joints essential for DAS28, bilateral wrists and MCPJ2~5 of each patient were scanned simultaneously on 3.0T MRI system. MRI synovitis, osteitis and bone erosion were scored referred to the definitions and atlas of RAMRIS system.
**Results:** (1) Among 120 RA patients were included, 79% were female, age (median and IQR, similarly hereinafter) was 52 (44~61) years, disease duration was 48 (12~120) months and DAS28-crp was 5.9 (4.7~6.9). The mean imaging time for the entire MRI examinations including the time of patient positioning and contrast agent injection was 23 minutes. The mean scoring time was 10 minutes for $RAMRIS_{bilateral\ hands}$ and 7 minutes for $RAMRIS_{unilateral\ hand}$. Interreader ICC for $RAMRIS_{bilateral\ hands}$ was 0.852 in synovitis, 0.739 in osteitis and 0.815 in bone erosion.
(2) The frequencies of MRI synovitis, osteitis and bone erosion per joint or bone were shown in figure1A. For MCPJ2~5, 27%~42% of RA patients showed unilateral synovitis, 45%~53% showed unilateral osteitis and 51%~69% showed unilateral bone erosion (Figure1B).
(3) Of wrists with MRI synovitis, 73% were not swollen and 48% were not tender at physical examination. Of wrists with MRI osteitis, 74% were not swollen and 49% were not tender. Similar trend was seen in MCPJ2~5 (Figure1C).
(4) The most clinically involved hands (or dominant hand in case of equally severe involved) were usually chosen for MRI of unilateral hand. Here 70 patients showed more severe involvement in unilateral hand according to patients' complaint and physical examination. However, MRI verified 42%, 40% and 42% of them respectively had more synovits, osteitis and bone erosion in the opposite hand. The other 50 patients had equally severe involvement at physical examination and the dominant hands were chosen. MRI verified 30%, 49% and 33% of them respectively had more synovits, osteitis and bone erosion in the non-dominant hand.
(5) $RAMRIS_{bilateral\ hands}$ was correlated positively with RA disease activity indices, X-ray Sharp/vdH total score and subscores (all $p<0.05$). Moderate correlation was found between $RAMRIS_{bilateral\ hands}$ in synovitis and ESR, CRP, TJC28, SJC28, DAS28, SDAI or CDAI (all $r>0.4$, $p<0.001$). Relatively high correlation was found between $RAMRIS_{bilateral\ hands}$ in bone erosion and X-ray Sharp/vdH total score or erosion subscore (all $r>0.7$, $p<0.001$).
**Conclusions:** Performing MRI of bilateral hands yields additive information compared with imaging only unilateral hand.
**Disclosure of Interest:** None declared
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## SAT0079 ASSOCIATION OF ALCOHOL CONSUMPTION AND DISEASE ACTIVITY IN JAPANESE PATIENTS WITH RHEUMATOID ARTHRITIS: ANALYSIS OF THE IORRA COHORT

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**Background:** While the results of several observational studies suggest that light-to-moderate alcohol consumption may decrease the risk for susceptibility to or severity of rheumatoid arthritis (RA) (1–3), findings regarding the effect of alcohol consumption on RA disease activity are conflicting. Furthermore, there are few reports of longitudinal studies regarding the effect of alcohol consumption on RA disease activity. In addition, although alcohol consumption in the Japanese general population was lower than that in European countries, according to the 2011 World Health Organization's Global Status Report on Alcohol and Health, there are few reports specifically concerning alcohol consumption in Japanese RA patients.
**Objectives:** To examine the longitudinal relationship between alcohol consumption and changes in disease activity in patients with RA using the Institute of Rheumatology, Rheumatoid Arthritis (IORRA) cohort database.
**Methods:** Subjects were RA patients who participated in the IORRA cohort study between October 2014 and October 2015. Patients were assigned to one of 5 groups according to alcohol-drinking status at baseline: the non-drinking group, drinking group 1 (0 g < amount of drinking per day [Alco-drink] ≦14 g), drinking group 2 (14 g < Alco-drink ≦28 g), drinking group 3 (28 g < Alco-drink ≦50 g), and drinking group 4 (50 g < Alco-drink). Multiple regression analyses were used to examine the relationship between alcohol consumption and baseline DAS28, and change in DAS28 between baseline and 1 year.
**Results:** Data from a total of 4,695 Japanese patients with RA (female: 86.6%, mean age: 61.3 years old, mean disease duration: 15.2 years, and mean DAS28: 2.5) were analyzed. The number of patients and their characteristics (% female, mean age, mean disease duration, mean DAS28 at baseline/after 1 year) in the non-drinking group, and drinking groups 1, 2, 3, and 4 were 2,735 (92.8%, 64.0 years old, 16.1 years, 2.7/2.7); 646 (89.9%, 58.7 years old, 14.8 years, 2.4/2.5), 497 (82.5%, 56.7 years old, 13.8 years, 2.3/2.3), 444 (71.6%, 56.4 years old, 13.0 years, 2.3/2.3), and 373 (58.2%, 57.5 years old, 13.7 years, 2.2/2.3), respectively. Baseline DAS28 in drinking groups 2 (p=0.02), 3 ($p<0.01$), and 4 ($p<0.01$) was significantly lower than that in the nondrinking group. Multivariate regression analysis revealed that there was no association between alcohol-drinking status and the change in DAS28 at 1 year, after adjusting for DAS28 at baseline.

**Conclusions:** Although moderate-to-heavy alcohol consumption was associated with lower baseline DAS28 in patients, alcohol drinking status was not associated with change in disease activity, as measured by DAS28, at 1-year follow-up.

**References:**
[1] Di Giuseppe D. BMJ, 2012 Jul 10;345:e4230.
[2] Kallberg H. Ann Rheum Dis, 2009;68:222–7.
[3] Maxwell JR. Rheumatology (Oxford), 2010;49:2140–6.

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## SAT0080 CLINICAL SIGNIFICANCE OF SOLUBLE CD163 IN REFRACTORY SYSTEMIC-ONSET IDIOPATHIC ARTHRITIS

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**Objectives:** The present study explored the correlation of soluble CD163 with refractory systemic-onset juvenile idiopathic arthritis (refractory So-JIA) as well as the clinical significanceof soluble CD163 in (refractory So-JIA).
**Methods:** A total of 33 young patients diagnosed with So-JIA in the active period and 30 young patients diagnosed with So-JIA in the inactive period at Guangzhou Women and Children's Medical Center (Guangzhou, China) from January 2010 to January 2012 as well as 40 age-matched healthy individuals, who had visited the hospital for medical examination in the same time-period were enrolled in the present study. Flow cytometry was used to determine the lymphocyte count and ELISA was adopted for determining the levels of soluble CD163 in serum
**Results:** The levels of soluble CD163 and their correlation with indexes of disease activity were observed. In patients with So-JIA in the active period, the levels of soluble CD163 and the Tcell count were significantly higher than those in the inactive So-JIA and healthy individuals ($P<0.05$). Furthermore, the levels of soluble CD163 were positively correlated with C-reactive protein, ferritin, erythrocyte sedimentation rate, white blood cell count and immunoglobulin E as indexes of disease activity ($P<0.05$).
**Conclusions:** Soluble CD163 is a more valuable index for early recognise refractory active So-JIA, which can provide a basis for active period development and clinical observation.
**Disclosure of Interest:** None declared
**DOI:** 10.1136/annrheumdis-2017-eular.1993

## SAT0081 RELATIONSHIP BETWEEN RHEUMATOID FACTOR POSITIVITY AND TREATMENT EFFECT WITH A FIRST BIOLOGIC AGENT IN RHEUMATOID ARTHRITIS: MULTICENTER STUDY USING A MIXED-EFFECT MODEL

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**Background:** Although the presence of rheumatoid factor (RF) may be a risk factor for the onset and progression of rheumatoid arthritis (RA), sufficient literature does not exist to support the clinical relationship between RF positivity and the effects of treatment with biologic disease-modifying antirheumatic drugs (bDMARDS). This multicenter study aimed to explore the association of RF positivity with the effects of bDMARDS treatment in bio-naïve RA patients using a linear mixed-effect model.
**Objectives:** In a multicenter study, patients are clustered within institutions, therefore results of adjustment models are likely to be biased by random, unobserved between-institution differences. Such bias could lead to inaccurate prediction and interpretation of outcomes. We used a linear mixed-effect model including between-institution variation as a random effect, which would improve the performance of this multicenter study.
**Methods:** In total, 625 bio-naïve RA patients registered in the Tsurumai Biologics Communication Registry (TBCR), which comprises Nagoya University and 15 affiliated institutions in Japan, who received bDMARDS treatment during the study period (2006–2016) were eligible for inclusion. Demographic information and disease characteristics were assessed at baseline. DAS28 using erythrocyte sedimentation rate was recorded at baseline and following 24 weeks of therapy. In order to predict DAS28 improvement at 24 week, a linear mixed-effect model including between-institution variation as a random effect, controlling for RF positivity, age, sex, stage, methotrexate (MTX) use, prednisolone (PSL) use, tumor necrosis factor inhibitor (TNFi) or non-TNFi, and DAS28 at baseline, was developed.
**Results:** Of the 625 patients, 513 showed RF positivity and 112 were antibody negative. Mean ± SD age at baseline was 56.9±14.0 years; 509 patients were women (81.4%). The mean ± SD DAS28 score at baseline was 5.19±1.24. Proportion of MTX and PSL use were 79.3% and 58.1%, respectively. Following adjustment for relevant covariates, RF positivity was associated with a decrease biologic treatment effect ($\beta = -0.33\pm0.12$, $p<0.05$). In another model including an additional interaction term of RF status and TNFi or non-TNFi, the influence of RF status on treatment effect was persistent ($\beta = -0.26\pm0.14$, $p<0.1$). These two models had comparable AIC. A model excluding RF positivity term had larger AIC than these two models, suggesting that RF positivity is crucial for predicting the effect of bDMARDS treatment.

Fixed effects

| | β coefficient estimate | Std. Error | p value |
|---|---|---|---|
| (Intercept) | 0.18 | 0.42 | 0.67 |
| RF positivity | -0.33 | 0.12 | <0.05 |
| DAS28 at baseline | 0.74 | 0.041 | <0.05 |
| Age | -0.016 | 0.0037 | <0.05 |
| Female gender | -0.35 | 0.12 | <0.05 |
| Non-TNFi use (TNFi as reference) | 0.29 | 0.12 | <0.05 |
| Methotrexate use | 0.084 | 0.12 | 0.51 |
| Prednisolone use | -0.23 | 0.10 | <0.05 |
| Stage | -0.24 | 0.10 | <0.05 |

**Conclusions:** In our multicenter study using a linear mixed-effect model including between-institution variation as a random effect, RF positivity, in addition to some well-known variables, was found to be independently associated with decreased effects of bDMARDS treatment in bio-naïve RA patients.
**Disclosure of Interest:** None declared
**DOI:** 10.1136/annrheumdis-2017-eular.1508

## SAT0082 THE INVESTIGATION FOR THE INFLUENCE OF SILASTIC ARTHROPLASTY OF METACARPOPHALANGEAL JOINT ON THE ACTIVE EXTENSION RANGE OF PROXIMAL INTERPHALANGEAL JOINT IN THE RHEUMATOID HAND

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**Background:** The ulnar deviation (Ud) deformity of the metacarpophalangeal (MCP) joints is a typical deformity in the patients of rheumatoid arthritis (RA). Joint replacement arthroplasty can be indicated for the treatment of severe Ud deformity, silastic prosthesis being widely used with generally good results [1]. There are few, however, previous reports focusing on the relationship between the range of motion (ROM) of the MCP and PIP joints after the surgery.
**Objectives:** The objective of this study was to investigate the influence of silastic replacement arthroplasty of MCP joint replacement on post-operative extension range of PIP joint of the same finger.
**Methods:** RA patients who underwent silastic replacement arthroplasty of at least 1 MCP joint except for thumb for the treatment of Ud deformity were reviewed. There were 80 hands of 65 patients, average age of whom was 70.1 (32.4 - 86.1) years old, 56 patients being female and 9 being men. The ROM of the PIP joints before and after surgery was collected from the medical records, and the relationship between the post-operative change of ROM in PIP joints and post-operative ROM of in the MCP joint of same finger was examined. Paired-t test and the correlation coefficient were used for statistical analysis.
**Results:** The mean active extension range of PIP joints in index to little finger changed from -0.68° (-56.0–30.0) to 0.92° (-52.0–30.0)° [P=0.55], -5.64° (-104.0–30.0) to -8.44° (-56.0–30.0) [P=0.03], -3.44° (-112.0–32.0) to -8.91° (-94.0–40.0) [P=0.08], and -9.81° (-96.0–30.0) to -17.2° (-76.0–30.0) [P=0.07], respectively. There was an indication of a decrease in post-operative extension range of PIP joint except for the index finger. The ROM of the PIP joint was reduced only in the little finger, but was significantly increased in the index and middle finger. Correlation coefficients between the active flexion range of the MCP joint and the active extension range of the PIP joint of index to little finger was 0.34, 0.19, 0.08, and 0.33 respectively, no correlation being found.
**Conclusions:** Post-operative decline in active extension of the PIP joint might be a compensatory change accompanying a shift of the arc of motion of the