through the population census of the National Institute of Statistics, with an estimated prevalence of RA of 0.5% in both sexes (0.2% in men and 0.8% in women). Crude and adjusted rates were calculated at the national level. The trend was analyzed by Generalized Linear Models (GLM) using the year variable as the analysis variable. Clinical-demographic factors associated with these infections were analyzed, using uni and multivariate logistic regression.

Results: Of the total of 338,343 hospital admissions in patients with RA during the 17 years of the study period, there were 4,097 (1.2%) admissions with opportunistic infection, 1591 (38.8%) in men and 2506 (61.2%) in women ($p < 0.001$). The infections found in order of frequency were: HZ 1295 (29.9%), Tbc 1227 (29.9%), Aspergillosis 357 (8.7%), systemic candidiasis 342 (8.3%), CMV 270 (6.5%), EBV 133 (3.2%), Pneumocystosis 122 (2.9%), Leishmaniosis 100 (2.4%), Listeriosis 98 (2.3%), Mycobacteria no tbc 85 (2%), Nocardiosis 86 (2.1%), Trypanosoma Cruzi 19 (<1%), JVC 19 (<1%), Cryptococcosis 15 (<1%), Toxoplasmosis 14 (<1%), Strongyloides 11 (<1%), Cryptosporidium 6 (<1%), Histoplasmosis 1 (<10%), blastomycosis 1 (<1%). Between 20-40 years the most frequent infections were: Tbc, EBV, CMV; Between 40-60 years: Tbc, HZ, CMV; Over 60 years old: HZ, tbc, aspergillus. The mean age was 65.54 (SD16.6). 445 (10.9%) died during admission; 217 (13.6%) in men and 228 (9.1%) in women ($p < 0.001$). The mean of the Charlson index was 1.96 (1.49), 2.21 (SD1.6) in men and 1.81 (SD1.3) in women ($p < 0.001$). The Relative Risk male: female was 2.77. The infections with the highest male/female RR were: Leishmaniosis (4.77), Listeriosis (4.1) and Aspergillosis (3.8). The infections with the highest lethality were: Pneumocystosis (31%), Candidiasis (29.8%) and Aspergillosis (27.7%). The age-adjusted rate for all OI was 146.21/100,000 inh*year, 297.05 in men and 107.37 in women. Adjusted IO rates increased from 85.47 in 1999, to 193.48 in 2015. It is estimated that this increase is of 4.96% per year. In the multivariate analysis, the factors associated with OI were: male, COPD and liver disease.

Conclusion: In Spain, during the period 1999 to 2015, there has been an increase in the incidence rate of OI in patients with RA. We estimate an annual increase of 4.9%. Being male and having COPD or liver disease are associated with OI.

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THU0146

POOR COMPLIANCE BY RHEUMATOLOGISTS AND ORTHOPAEDISTS WITH GUIDELINES FOR THE PERIOPERATIVE MANAGEMENT OF RHEUMATOID ARTHRITIS PATIENTS UNDERGOING ARTHROPLASTY

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Background: Appropriate management can reduce the increased perioperative infection risk in RA patients(1). In 2017, American College of Rheumatology (ACR) and the American Association of Hip and Knee Surgeons released *Guidelines for the Perioperative Management of Antirheumatic Medication in Patients With Rheumatic Diseases Undergoing Elective Total Hip or Total Knee Arthroplasty*(1). Atlanto-axial subluxation at induction of general anaesthetic (GA) is another concern. Preoperative C-spine X-rays with flexion-extension views are recommended(2).

Objectives: Assess compliance with medication guidelines and C-spine imaging practices for RA patients undergoing arthroplasty under GA.

Methods: An anonymous 24 question paper-based survey was distributed at Irish Society of Rheumatology Meeting (September 2017) and Irish Institute of Trauma and Orthopaedic Surgery Curriculum Day (January 2018) examining clinician demographics, imaging and prescribing practices.

Results: 33 orthopaedists and 23 rheumatologists responded. The majority (n=46) were trainees and <40 years old (n=43). Most rheumatologists were female and orthopaedists male.

The guideline advocates cDMARD continuation perioperatively(1). Rheumatologists are more likely than orthopaedists to continue cDMARDs (Pearson Chi squared, 0.001). 8 (36%) rheumatologists continue cDMARDs, 6 (27%) stop one week preoperatively and 8 (36%) at two weeks. 1 orthopaedist never stops cDMARDs. 8 (24%) stop at one week preoperatively, 13 (39%) at 2 weeks, 5 (15%) at 4 weeks. 6 (18%) were unsure.

The guideline advocates stopping bDMARDs 1 dosing cycle preoperatively and restarting after wound healing. Depending on the agent, 2 to 4 rheumatologists never stop bDMARDs preoperatively. Responses varied by medication half-life. 18 hold etanercept for <4 weeks and 11 hold rituximab for >8 weeks. 2 orthopaedists never stop bDMARDs preoperatively.

Depending on the agent, 14-15 would stop <4 weeks prior, 10-12 were unsure, 4-8 weeks was chosen 4-5 times and >8 weeks 0-1 times.

Regarding patients on glucocorticoids for RA, the guideline advocates continuing current dosing perioperatively. 6 orthopaedists always increase steroids (13 sometimes, 9 never, 5 unsure). 7 never stop (13 sometimes, 6 always, 5 unsure). 12 rheumatologists sometimes increased steroids (8 always, 1 never, 1 not sure, 1 no answer). 14 never stop steroids (8 sometimes, one not sure).

In RA patients undergoing GA, 22 orthopaedists always perform C spine imaging prior (10 sometimes, 1 never). 11 rheumatologists always do C spine imaging prior (11 sometimes, 1 never). Orthopaedists are more likely than rheumatologists to always perform spinal imaging preoperatively (P value=0.002, Fisher's exact test).

Abstract THU0146 – Figure 1. Number of clinicians who always order C spine imaging prior to arthroplasty in RA patients undergoing GA

Conclusion: There is poor compliance with guidelines and variability and uncertainty in prescribing. Orthopaedists often discontinue sDMARDs preoperatively despite guidelines to the contrary. Orthopaedists are more likely than rheumatologists to perform preoperative C spine imaging as per recommendations.

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THU0147

FACTORS CONTRIBUTING TO DISCREPANT ESTIMATED GLOMERULAR FILTRATION VALUES MEASURED BY CREATININE AND CYSTATIN C IN PATIENTS WITH RHEUMATOID ARTHRITIS (RA)

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Background: In rheumatoid arthritis (RA) patients, it is important to evaluate renal function, because it may deteriorate due to RA itself or drug use requiring drug dose adjustment. Recently, Cystatin C (CysC) has been used as a more accurate marker of renal function than Creatinine (Cr), because it is not affected by muscle mass.¹⁾ Renal function of some RA patients is overestimated by Cr, and shows a discrepancy in the estimated glomerular filtration between Cr and CysC. However, what

factors contribute to this discrepancy and in what RA patients CysC should be evaluated remain to be elucidated.

Objectives: To clarify the factors contributing to the discrepancy between eGFR measured using Cr (eGFR-Cr) and CysC (eGFR-CysC).

Methods: We enrolled 236 RA patients (188 females, 48 males; mean age 65.3 ± 14.0 years; disease duration 12.0 ± 11.0 years). We measured BUN, Cr, CysC, IgG, IgA, IgM, C3, C4, CH50, RF and aCCP in patient serum, urinary proteins, urinary blood, and urinary casts and evaluated CDAI, SDAI, disease activity score (DAS) 28-CRP and DAS28-ESR. Steinbrocker functional classification and radiological grading were evaluated. History of diabetes mellitus, hypertension and hyperlipidemia was determined from the medical records. Estimated glomerular filtration rate (eGFR) was calculated by the new Japanese coefficient-modified Modification of Diet in Renal disease (MDRD) study equation.

Results: The eGFR-Cr and eGFR-CysC of RA patients were 72.5 ± 20.2 (12.0 – 142.0) and 72.3 ± 24.9 (6.3 – 167.8), with no significant difference between the two. The correlation between them was significant ($r=0.715$, $p<0.0001$). However, 26 of 180 patients with eGFR-Cr greater than or equal to 60 showed eGFR-Cys of less than 60. To clarify the factors that contribute to a greater than 20% discrepancy (eGFR-Cr $\geq 20\%$ higher than eGFR-CysC) between eGFR-Cr and eGFR-CysC, we divided our patients into group A (eGFR-Cr/eGFR-CysC ≥ 1.2) and group B (eGFR-Cr/eGFR-CysC < 1.2). Group A was older (73.8 ± 12.5 vs 63.2 ± 13.6 years), had longer disease duration (17.7 ± 14.0 vs 10.4 ± 9.5 years), lower BMI (20.0 ± 2.9 vs 22.4 ± 3.6), lower CK (63.9 ± 36.0 vs 92.5 ± 79.6), higher disease activity, more frequent diabetes mellitus (35.6% vs 11.0%) and more frequent stage 4 of Steinbrocker radiological grading (47.7% vs 15.3%) than Group B by univariate analysis significantly ($p<0.01$). We then performed multifactorial analysis using logistic regression analysis by stepwise method. Diabetes mellitus (OR 6.3475, 8.394–479.990), SDAI (OR 1.088, 1.006–1.177), lower RBC counts (OR 0.753, 0.645–0.880), lower CK (OR 0.724, 0.598–0.876), no NSAIDs (OR 0.024, 0.003–0.219) and stage 4 of Steinbrocker radiological grading (OR 12.009, 2.962–48.678) were found as independent risk factors for group A.

Conclusion: Renal functions of RA patients with high disease activity, diabetes mellitus, advanced stage, anemia or lower CK could be overestimated when judged using eGFR-Cr alone. Assessment of renal function in such RA patients requires particular attention.

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THU0148

COMPARISON OF SERUM LEVELS OF GDF-15 IN PATIENTS WITH RHEUMATOID ARTHRITIS WITH OR WITHOUT DISEASE ACTIVITY

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Background: The increase in morbidity and mortality in Rheumatoid arthritis (RA) is due to 50% by cardiovascular risk factors associated with chronic-inflammatory processes, among these factors, GDF-15 has been associated with chronic-inflammatory processes such as RA; in addition to being related to the state of the disease of several pathologies with similar mechanisms. GDF-15 could be involved in the pathogenesis of RA and thus, show an association with the activity of a disease in RA. The most common clinimetric tool to evaluate disease activity in RA is Disease Activity Score on 28 joints (DAS28).

Objectives: To compare the serum levels of GDF-15 in patients with RA with or without disease activity.

Methods: Cross-sectional study, including 162 patients with RA, aged ≥ 18 years old who fulfilled the 1987 ACR classification criteria. RA disease activity was assessed using DAS28-PCR. Sera samples were obtained from venous blood by centrifugation at 3500 rpm for 15 min at room temperature. Serum GDF-15 was measured using an ELISA kit (BioVendor, Germany). Descriptive statistics (mean and standard deviation (SD)) were used for assessing the demographics and clinical parameters. Differences between patients with and without disease activity were assessed using T-student and Chi² tests. P-values ≤ 0.05 were considered statistically significant.

Results: The mean age was 57.2 ± 11.5 years and mean BMI was 27.52 ± 4.78 kg/m². The mean disease duration was 13.60 ± 9.50 years. The GDF-15 was 435.54 ± 310.64 ng/L. For number of swollen and tender joints, the score was 1.50 ± 3.52 and 2.81 ± 4.59 respectively. VAS-pain was 37.00 ± 27.77 . DAS28-CRP score was 3.15 ± 1.18 . When applying the cut-off value for disease activity (DAS28 score ≥ 2.6) or remission (DAS28 score < 2.6) we obtained 65 (40.1%) and 97 (59.9%) respectively. Comparison of GDF-15 serum levels between active (455.09 ± 333.47) and remission (406.36 ± 272.94) showed no significant associations ($p=0.32$). When performing Pearson's correlation among GDF-15 serum levels and PCR levels ($r=0.142$, $p=0.07$) or DAS28-PCR values ($r=0.081$, $p=0.30$) no relevant correlations were obtained.

Conclusion: RA activity is not associated with values of serum levels of GDF-15. Prospective studies are necessary to explain changes in GDF-15 levels throughout RA.

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THU0149

PRIME-BOOSTER RESPONSE TO PNEUMOCOCCAL CONJUGATE AND POLYSACCHARIDE VACCINES IN PATIENTS WITH INFLAMMATORY RHEUMATIC DISEASES

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Background: A vaccination using a combination of a dose of 13-valent pneumococcal conjugate vaccine (PCV13) followed by a dose of 23-valent polysaccharide vaccine (PPV23) after at least 8 weeks is currently recommended for the immunosuppressed patients with rheumatic diseases.

Objectives: To explore if the prime-booster vaccination strategy using the combination of PCV13 + PPV23 improves antibody response compared to PCV alone in immunosuppressed patients with inflammatory rheumatic diseases, and to compare with the prime-booster response in patients not treated with disease modifying anti-rheumatic drugs (DMARDs) and controls.

Methods: In total, 45 patients treated with rituximab (rheumatoid arthritis (RA)/arthritis=35 and vasculitis=10), 20 RA patients on abatacept; 27 patients on methotrexate/azathioprine/mycophenolate mofetil (MTX/AZA/MMF; RA=14 and vasculitis=13); 17 patients without DMARDs (RA/arthritis=12 and vasculitis=5) and 25 healthy controls participated. Only patients on an unchanged dose of DMARDs for at least 4 weeks before vaccination were eligible for the study. All participants were vaccinated with a dose PCV followed by a dose PPV23 after at least 8 weeks. A subgroup of rituximab treated patients had been vaccinated earlier with either 7-valent pneumococcal conjugate vaccine (PCV7) or PCV13. Blood samples were taken immediately before and 4–6 weeks after each vaccine dose. Pneumococcal serotype-specific antibodies to the 12 serotypes