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.

REFERENCE:

- [1] Nozawa Y, Sato H, Wakamatsu A, et al. Utility of estimated glomerular filtration rate using cystatin C and its interpretation in patients with rheumatoid arthritis under glucocorticoid therapy. *Clin Chim Acta* 2018; 487, 299–305.

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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.

REFERENCES:

- [1] Wiklund FE, Bennet AM, Magnusson PK, Eriksson UK, Lindmark F, Wu L, Yaghouityam N, Marquis CP, Stattin P, Pedersen NL, Adami HO, Grönberg H, Breit SN, Brown DA. Macrophage inhibitory cytokine-1 (MIC-1/GDF15): a new marker of all-cause mortality. *Aging Cell*. 2010 Dec; 9 (6):1057–64.
- [2] Brown DA, Moore J, Johnen H, Smeets TJ, Bauskin AR, Kuffner T, Weedon H, Milliken ST, Tak PP, Smith MD, Breit SN. Serum macrophage inhibitory cytokine 1 in rheumatoid arthritis: a potential marker of erosive joint destruction. *Arthritis Rheum*. 2007 Mar; 56(3):753–64.

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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