Rheumatoid arthritis - prognosis, predictors and outcome

ENDOCITRULLINATION OF RA AUTOANTIGENS IS MORE ABUNDANT THAN C-TERMINAL CITRULLINATION IN THE GINGIVAL CREVICAL FLUID OF ANTI-CCP POSITIVE AT-RISK INDIVIDUALS WITH PERIODONTAL DISEASE BUT NO SYNOVITIS

Keywords: Inflammatory arthritides

X. Yu1, S. Hester2, K. Harnden3,4, R. Chowdhury5, L. Duquenne6,7, Z. Mustapha1, J. Meade1, T. Do1, R. Fischer2, K. Midwood2, P. Emery3,8, K. Mankia3,4, Oral Biology, University of Leeds, Leeds, United Kingdom; 2Target Discovery Institute, Nuffield Department of Medicine, University of Oxford, Oxford, United Kingdom; 3NIHR, Leeds Biomedical Research Centre, Leeds, United Kingdom; 4Leeds Institute of Rheumatology and Musculoskeletal Medicine, University of Leeds, Leeds, United Kingdom; 5School of Dentistry, University of Leeds, Leeds, United Kingdom; 6Kennedy Institute of Rheumatology, Oxford University, Oxford, United Kingdom

Background: RA autoimmunity may be initiated at mucosal sites, including the periodontium. Anti-CCP positive at-risk individuals without synovitis (CCP+ at-risk) have an increased prevalence of periodontal disease (PD) and Porphyromonas gingivalis and an oral dysbiosis [1]. P gingivalis preferentially citrullinates C-terminal peptides by virtue of its peptidylarginine deiminase (PPAD) enzyme (2), whereas other periodontal bacteria predominantly induce endocitrullination [3]. These factors may trigger anti-citrullinated protein antibodies (ACPA), although the relative contribution of local C-terminal and endocitrullination is unclear.

Objectives: To determine the relative abundance of endo- and C-terminally citrullinated RA autoantigens in the gingival crevicular fluid (GCF) of CCP+ at-risk individuals with PD compared with controls.

Methods: CCP+ at-risk were identified from a UK cohort of anti-CCP+ individuals with musculoskeletal symptoms but no clinical synovitis. CCP+ at-risk underwent comprehensive periodontal assessment by a dentist, including GCF sampling from periodontally diseased sites. Control subjects (i.e. CCP-) with and without periodontal disease were also sampled. GCF was analysed by liquid chromatography mass spectrometry (LC-MS/MS) to identify endo- and C-terminally citrullinated peptides. The t-test was used for the statistical analysis.

Results: 25 CCP+ at-risk, 9 and 10 controls with and without PD respectively underwent GCF sampling. Mass spectrometry identified citrullination in 114 proteins in GCF, including 16 RA autoantigens (vimentin, myeloid cell nuclear differentiation antigen, keratin (type VI cytoskeletal), heterogeneous nuclear ribonucleoprotein (A2/B1, K and U), fibrinogen (alpha and beta chain), histone (H1.4, H1.5, H1x, and H4), actin (cytoplasmic 2), apolipoprotein (A-I and A-IV). In CCP+ at-risk with PD and controls without PD there was higher total abundance of endocitrullinated RA autoantigens compared with c-terminal citrullinated autoantigens in GCF (p<0.05, Figure 1). In CCP+ at-risk with PD 15 endocitrullinated RA autoantigens compared with only 4 C-terminally citrullinated RA autoantigens were identified (Figure 1). Fewer citrullinated RA autoantigens were identified in control subjects compared with CCP+ at-risk. More endocitrullinated compared with C-terminally citrullinated RA autoantigens were identified in controls with and without PD (Figure 1).

Conclusion: Several citrullinated RA autoantigens are present in the GCF of CCP+ at-risk individuals with periodontal disease but no synovitis. We identified endocitrullination as generally more abundant than C-terminal citrullination in both CCP+ at-risk and seronegative controls, suggesting PPAD may not be the primary source of citrullination. These data support the hypothesis that local citrullination of RA autoantigens at the periodontium may be an early driver of the ACPA response in RA.

REFERENCES:

Acknowledgements: NIL.

DOI: 10.1136/annrheumdis-2023-eular.5328

Figure 1. Citrullinated RA autoantigens in gingival crevicular fluid (GCF) samples. (A) Endocitrullinated RA autoantigens. (B) C-terminal citrullinated RA autoantigens. * indicates p value < 0.05, t-test. PD: periodontal disease; CCP+: anti-CCP positive individuals with new musculoskeletal symptoms but no synovitis; CCP-: anti-CCP negative individuals with new musculoskeletal symptoms or synovitis.

CLINICAL OUTCOMES OF ELDERLY PATIENTS WITH RHEUMATOID ARTHRITIS WHO UNDERWENT PERCUtANEOUS CORONARY INTERVENTION: A NATIONWIDE COHORT STUDY

Keywords: Rheumatoid arthritis, Cardiovascular disease

B.Y. Kim1, L. Kyung-Ann2, J. H. Jung3, S. W. Nam4, J. E. Park5, Gangneung Asan Hospital, University of Ulsan College of Medicine, Department of Internal Medicine, Gangneung, Korea, Rep. of (South Korea); 2Soonchunhyang University Seoul Hospital, Department of Internal Medicine, Seoul, Korea, Rep. of (South Korea); 3Korea University College of Medicine, Department of Internal Medicine, Ansan, Korea, Rep. of (South Korea); 4Wonju Severance Christian Hospital, Yonsei University Wonju College of Medicine, Department of Internal Medicine, Wonju, Korea, Rep. of (South Korea); 5Konkuk University Chungju Hospital, Department of Internal Medicine, Chungju, Korea, Rep. of (South Korea)

Background: Rheumatoid arthritis (RA), a systemic inflammatory arthritis, is associated with an increased risk of cardiovascular disease. Despite an increased proportion of elderly patients with RA and an increased prevalence of patients with RA undergoing percutaneous coronary intervention (PCI), studies on the PCI outcomes in elderly patients with RA are limited and controversial.

Objectives: This study aimed to evaluate the prognosis of elderly patients with and without RA who underwent PCI and the risk factors associated with the prognosis.

Methods: The Korean National Health Insurance Service claims database was used to extract data on 74623 patients (14,074 patients with RA and 60,549 patients without RA) aged 65 years or older who were diagnosed with acute coronary syndrome and underwent PCI between 2008 and 2019. The primary outcome was all-cause mortality between elderly RA patients with and without RA. The secondary outcome was all-cause mortality in elderly RA patients with and without RA that manifests after the age of 65 years and elderly patients who presented with young onset RA earlier in life.

Results: During a 10-year follow-up, the survival rate was lower in patients with RA than in those without RA (with RA: 53.7% vs. without RA: 58.3%, log-rank P<0.001). Compared to patients without RA, patients with elderly onset RA have poor survival outcomes and patients with young onset RA have good survival outcomes (with elderly onset RA: 48.1% vs. with young onset RA: 73.7% vs. without RA: 58.3%, log-rank P<0.001). Multivariable logistic regression analyses showed that diabetes mellitus (hazard ratio (HR) 1.39, 95% confidence intervals (CI) 1.35-1.43, P<0.001), chronic kidney disease (HR=3.97, 95% CI 3.63-4.34, P<0.001), and PCI due to myocardial infarction (HR=1.35, 95% CI 1.33-1.37, P<0.001) were the independent risk factors for all-cause mortality.

Conclusion: Elderly patients with RA who underwent PCI for acute coronary syndrome have an increased rate of all-cause mortality compared to general elderly patients. Among elderly patients with RA, patients with elderly onset RA particularly have poor survival outcomes. Based on the aspects of RA and cardiovascular disease in elderly patients, the clinical practice should focus on more detailed and active secondary prevention methods for a better prognosis.

REFERENCES: