Rheumatoid arthritis - comorbidity and clinical aspects

FRI0022

EVALUATION OF DYSFUNCTIONAL HIGH-DENSITY LIPOPROTEIN LEVELS WITH MYELOPEROXIDASE/PARAOXONASE1 RATIO IN RHEUMATOID ARTHRITIS

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Background: Rheumatoid arthritis (RA) is a chronic, systemic and autoimmune disease with inflammatory arthritis. Atherosclerosis and cardiovascular diseases are common in RA patients. Although chronic systemic inflammation in RA patients is considered to be the main cause of this condition, the relationship between systemic inflammation and vascular pathophysiology is not clear [1]. While high-density lipoprotein (HDL) is known to be a negative risk factor for atherosclerosis by reverse cholesterol transport, recent studies show that HDL can be pro-atherogenic (dysfunctional, inflammatory) by losing this characteristic in cases of inflammation and oxidative stress. Myeloperoxidase (MPO)/paraoxonase 1 (PON1) ratio is a valuable marker that can be routinely used as an indicator of dysfunctional HDL. PON1 is a lipoprotein-derived enzyme which provides antioxidant properties of HDL. Although MPO is a bactericidal enzyme derived from granular leukocytes, it causes oxidative modification of circulating lipoproteins [2].

Objectives: The aim of this study is to evaluate the levels of dysfunctional HDL in RA patients and to explore the relationship between dysfunctional HDL and coronary artery disease (CAD) in RA patients.

Methods: Sixty seven healthy individuals and 130 RA patients without diabetes mellitus, hypertension and hyperlipidemia were included to study. Blood samples taken from patients and healthy volunteers were centrifuged to separate serum and these serum samples were stored at -80 °C until the study day. Total cholesterol (TC), triglyceride (TG), HDL, Low-density lipoprotein cholesterol (LDL), MPO and PON1 levels were measured. The MPO/PON1 ratio was calculated as a dysfunctional HDL marker. Cardiology notes of the patients were examined to detect patients who also have CAD.

Results: The mean age of the patient and control groups were 54.6 ± 11.3 and 52.0 ± 10.0, respectively (p:0.107). The mean DAS28 score of the patients was 2.77 ± 0.96. There were no significant differences between two groups in TC, TG, HDL and LDL (p> 0.05). MPO, PON1 and dysfunctional HDL levels were significantly higher in the RA group compared to control group (p <0.001, p <0.023, and p <0.001; respectively).

Dysfunctional HDL levels were higher in 44 RA patients with CAD compared to 86 RA patients without CAD (p = 0.002). 58 patients with active RA had higher dysfunctional HDL levels compared to 72 patients with remission (p = 0.002). There was a positive correlation between DAS28 scores and dysfunctional HDL levels (rho: 0.357, p < 0.001).

Conclusion: Our study shows that, although there is no abnormality in lipid profile parameters, dysfunctional HDL levels were higher in patients with active disease than patients with RA in remission and RA patient with CAD than without CADs. This condition could be associated with CAD in RA patients. Disturbance as a result of inflammation on HDL functions such as inhibition of LDL oxidation and reverse cholesterol transport, could be the cause of CAD in RA patients. As a result screening of conventional cardiovascular risk factors in RA patients with normal lipid panel might be inadequate. Therefore as an additional parameter, dysfunctional HDL are promising to evaluate cardiovascular risk of RA patients.

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FRI0023

CARDIOVASCULAR RISK AND VITAMIN D DEFICIENCY IN PATIENTS WITH RHEUMATOID ARTHRITIS IN THERAPY WITH TNF-ALPHA INHIBITORS

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Background: Cardiovascular disease is the main cause of mortality and morbidity in patients with rheumatoid arthritis (RA). Correlation between vitamin D deficiency and atherosclerosis in patients with rheumatoid arthritis is a subject of medical interest.

Objectives: We studied the correlation between vitamin D deficiency, body mass index (BMI) and carotid intima-media thickness (CIMT) in patients with rheumatoid arthritis with anti tumor necrosis factor-alpha (TNF-α) therapy.

Methods: Our study included 75 RA patients with anti-TNF-alpha therapy (Adalimumab, Infliximab, Etanercept) and 30 RA patients with DMARDs (Methotrexate/Leflunomide). The patients were diagnosed with RA according to ACR/EULAR (2010) classification **criteria**.

CIMT was measured using high-resolution Doppler ultrasonography. CIMT ≥ 0.9 mm is considered as a marker of atherosclerosis. Vitamin D deficiency was defined as serum 25-OH-vitamin D level <20 ng/mL. Other parameters included are age, body mass index (BMI=18.5-24.9kg/m²- normal weight; BMI≥25kg/m²- overweight) and disease activity (DAS28<2.6: remission; DAS28=2.6-3.2: low disease activity, DAS28=3.2-5.1: moderate disease activity; DAS28>5.1: high disease activity).

Patients with current use of vitamin D supplements were excluded.

Results: The anti-TNF group included 29 patients with Adalimumab (38.7%), 25 with Etanercept (33.3%) and 21 patients in treatment with Infliximab (28%). Their mean age was 52.0 years.

We evaluated patients at baseline and after 12 months with treatment.

In anti-TNF group we found 9 patients (12%) with normal BMI and normal vitamin D level correlated with high CIMT (p=0.001), 21 patients (28%) with overweight and normal vitamin D level correlated with high CIMT (p=0.003), and 31 patients (41.3%) with overweight and low vitamin D level correlated with high CIMT (p=0.001). 14 patients (18.7%) with normal vitamin D level and normal weight (9) or overweight (5) were correlated with normal CIMT (p=0.01).

In DMARDs group we followed the same correlation. Patients with normal BMI and normal vitamin D level had a low correlation with CIMT increase (p=0.01). Patients with overweight and low vitamin D level had a significant correlation with CIMT increase (p=0.003) than group with anti-TNF-alpha therapy.

After 12 months of therapy, patients treated with Adalimumab had lower CIMT levels than patients treated with Etanercept.

Conclusion: Rheumatoid arthritis patients treated with TNF inhibitors and with vitamin D deficiency but with normal BMI have been correlated with lower increase of CIMT than patients with DMARDs therapy. Normal vitamin D level was associated with low increase of CIMT in these patients. Deficiency of Vitamin D associated with overweight are risk factors for carotid atherosclerosis in patients with RA.

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FRI0024

AA AMYLOIDOSIS AND LUNG DISEASES IN RHEUMATOID ARTHRITIS – A POSTMORTEM CLINICOPATHOLOGIC STUDY OF 147 PATIENTS

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Background: Systemic AA amyloidosis (AAa) is one of the most important complications of rheumatoid arthritis (RA) [1].

A wide spectrum of lung diseases may complicate RA or associate with RA [2-4].

Objectives: The aim of this study was to determine the influence of AAa on lung diseases related or not related to RA.

Methods: We studied 161 random autopsy patients with RA [1]. RA was confirmed clinically according to the criteria of the ARA [5]. Tissue samples of the lungs were available for histological evaluation of 147 patients.