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Dissasekera S.N.

THYROID GLAND FUNCTION IN RHEUMATOID ARTHRITIS PATIENTS

Tutor: PhD, associate professor Dostanko N.Y.
Department of Internal Diseases, Cardiology and Rheumatology with a Course of Advanced Training and Retraining
Belarusian State Medical University, Minsk

Relevance. Rheumatoid arthritis (RA) is an inflammatory autoimmune disorder characterized by systemic manifestations. The global prevalence of RA is currently estimated to range from 0.24% to 1%. The pathogenesis of RA is multifactorial, involving genetic predisposition that triggers immune responses culminating in an autoinflammatory state. It has been observed that autoimmune conditions frequently coexist, with one autoimmune disease potentially predisposing to or being associated with another, a phenomenon described as multiple autoimmune syndrome. Notably, autoimmune thyroiditis is a common comorbidity in patients with RA, and both conditions predominantly affect females.

Aim: to investigate thyroid gland function parameters in RA patients.

Material and methods. We observed 100 patients with RA hospitalized to Rheumatology Department of State Institution Minsk Scientific and Practical Center for Surgery, Transplantology and Hematology, Belarus in 2024. The study assessed serum levels of thyroid-stimulating hormone (TSH) and thyroid peroxidase antibodies (aTPO). Data analysis was performed using STATISTICA 10 and Jamovi statistical software.

Results and their discussion. The study included 100 randomly selected patients with rheumatoid arthritis (RA), with a mean age of 58.6 years (SD=14.4) and a median age of 61.5 years (range 21–88). Females comprised 74% of the cohort, while males accounted for 26%. Rheumatoid factor (RF) was positive in 79.6% and negative in 20.4% of tested patients (n=93). Anti-cyclic citrullinated peptide (aCCP) antibodies were positive in 73.2% and negative in 26.8% (n=71). aTPO levels, measured in IU/ml, were negative in 80.9% and positive in 19.1% of patients (n=68), with considerable variability among aTPO-positive individuals: 7.4% (n=5) exhibited levels up to three times the upper limit (UL), 2.9% (n=2) ranged from 3 to 10 UL, and 8.8% (n=6) showed extreme values exceeding 10 UL. Gender-based analysis of aTPO levels indicated that 63.2% of females and 17.6% of males tested negative, whereas 17.6% of females and 1.5% of males tested positive; however, these differences were not statistically significant (p=0.25, z-test for independent samples).

TSH levels, assessed in 69 patients (mean=1.93 μIU/ml, SD=1.13), were within the optimal range (0.4-2.5 μIU/ml) in 69.6% of cases, while 30.4% exhibited non-optimal levels, including three patients with values above the upper limit (>4.0 μIU/ml) and four below the lower limit (0.4 μIU/ml). Analysis of TSH levels in aTPO-positive versus aTPO-negative patients revealed that a significantly higher proportion of aTPO-negative patients (57.4%) had optimal TSH levels compared to only 11.8% of aTPO-positive patients, who more frequently exhibited TSH values outside the normal range (p=0.0002, z-test for independent samples).

Conclusion. The findings of our study indicate that the presence of signs of secondary autoimmune disease (thyroiditis) in RA patients is not associated with gender, likely reflecting the pre-existing autoimmune nature of RA. Additionally, our results emphasize the importance of monitoring thyroid function in aTPO-positive RA patients, as this subgroup demonstrated a higher propensity for abnormal TSH levels.