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Diagnostic value of brush border enzymes of the proximal renal tubules in rheumatoid arthritis

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Abstract

Background: Proximal tubules of the kidney have a dominant function in the excretion of different enzymes in the urine. These enzymes can be used as markers for secondary renal damage under the action of different diseases, medicines, and toxins. The aim of this study was to evaluate the values of alanine aminopeptidase (AAP), gamma-glutamyl transferase (gamma-GT), and beta2 microglobulin (beta2m) in urine of patients with untreated rheumatoid arthritis (RA) and to define the possible association between untreated rheumatoid arthritis and tubular function at the brush border region.

Methods: We used a kinetic assay for AAP, standard methods by the International Federation for Clinical Chemistry (IFCC) for gamma-GT and Microparticle Enzyme Immunoassay (MEIA), (Abbott A(x)SYM System) for the determination of beta2m in urine of 70 participants (35 untreated RA patients and 35 healthy volunteers (HC)).

Results: From the total of 35 RA patients, AAP enzymuria was found in 24 patients with test sensitivity (68.57%), gamma-GT in 16 patients with test sensitivity (45.71%), while the presence of urinary beta2m was found in a very low percentage of cases. Out of 18 rheumatoid factor (RF) negative patients, 14 patients were AAP and 10 patients were gamma-GT positive, while the presence of beta2m in urine was not detected. Among 17 RF positive RA patients, the presence of AAP and gamma-GT was noticed in 10 and 6 patients, respectively, while the presence of beta2m in urine was not detected.

Conclusions: In conclusion, AAP had a higher sensitivity than gamma-GT and beta2m in detection of asymptomatic renal lesions in untreated RA.