

Quantitative Bone Scan with ^{99m}Tc -pyrophosphate to Assess the Severity of Joint Inflammation

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Abstract

The purpose of this study is to evaluate the methodology for quantitative bone scan to assess the joint inflammation severity in different rheumatic diseases. The study included 300 people (164 patients with a diagnosed rheumatoid and psoriatic arthritis, ankylosing spondylitis, peripheral spondylitis, osteoarthritis, chronic gouty arthritis and 136 control patients, including those with psoriasis without arthritis and chronic urinary infection). Bone scan was performed with sodium pyrophosphate labeled with ^{99m}Tc , three hours after its infusion. For each joint the radiopharmaceutical accumulation ratio (AR) was calculated. For most of the joints are found statistically significant correlations of AR with clinical symptoms of the joint involvement, as well as the dynamics of AR values while changing clinical and laboratory disease activity. It is noted that in patients with active chronic urinary tract infections and skin psoriasis increase of radiotracer accumulation in joints was similar to those in peripheral spondylitis and psoriatic arthritis, respectively.

Obtained data allows to conclude that the single-phase quantitative bone scan with labeled ^{99m}Tc pyrophosphate, is a promising technique for the quantification of inflammatory activity. This method may be used for an objective assessment of disease activity and changes the joint inflammation during treatment.

Key words: Quantitative Bone Scan, ^{99m}Tc , Sodium Pyrophosphate, Accumulation Rate, Arthritis, Inflammatory Activity.

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