

origin (UIO). Differential diagnosis of UIO is diverse and investigation of such cases are challenging and time consuming.

Objectives: to assess diagnostic utility of PET CT in the diagnosis of patients with UIO

Methods: Study comprised 68 (36 male, mean age 58.7±14.8, range 19-87 years) adult UIO subjects without a previous diagnosis of an inflammatory or malignant disease. Patients were screened with PET CT after 8 hours fasting, if a specific diagnosis could not be established with comprehensive evaluation including; meticulous history and physical examination, pertinent microbiologic cultures, brucella agglutination, Mantoux test, serum protein electrophoresis, echocardiography, plain x-rays, computed tomography of thorax and abdomen/pelvis.

Results: Final diagnosis were established in follow up were inflammatory diseases in 37 (54.4%), malignant disorders in 16 (23.5%) and infections in 5 (7.4%), whereas a final diagnosis cannot be made in 10 (14.7%). PET CT aided diagnosis in 40 (58.8%) patients but was ineffective in 28 (41.2%). All three PET CT positive subjects with a final diagnosis of infection had tuberculosis (tb). One of two PET negative subjects had EBV and one other also had tb. PET CT was positive in 24 of 37 (64.9%) subjects with a final diagnosis of inflammatory rheumatic disease. Final inflammatory diseases were large vessel vasculitis 15, polymyalgia rheumatica 5, seronegative arthritis 4, and other rare miscellaneous diseases, such as small vessel vasculitis, inflammatory myositis, polycondritis, sarcoidosis and IgG4 related disease. PET was positive in 11 of 15 (73.3%) large vessel vasculitis patients and 2 of 5 (40%) PMR patients. Because of small number of miscellaneous rheumatic diseases, diagnostic value of PET cannot be evaluated in these.

Conclusion: Investigation of underlying etiology of UIO is time and effort consuming. PET CT may help to identify final diagnosis more quickly by directing an obscure inflammatory site. PET CT may also have advantages like reducing number of unnecessary biopsies, diagnostic time, anxiety, work loss, morbidity and mortality

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SAT0537 THE REMS TECHNIQUE IS NOT AFFECTED BY ARTHROSIS ARTIFACT, WHICH CAN HINDER THE DENSITOMETRIC RECOGNITION OF OSTEOPOROSIS

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Background: the measurement of bone mineral density (BMD) with dual-energy X-ray absorptiometry (DXA) is the current “gold standard” for diagnosing and monitoring osteoporosis, any errors in demographic information, improper patient positioning, incorrect scan analysis or interpretation can lead to erroneous results and decisions [1]. Moreover, a common condition represented by osteoarthritis, by modifying the joint soft tissues composition, can alter the values of BMD [2].

In patients affected by discarthrosis, in fact, osteoporotic T-score values at femoral neck (FN) can be associated with normal or osteopenic T-score values of the lumbar spine (LS), the latter influenced by the presence of osteophytes and/or subchondral bone sclerosis.

Objectives: To evaluate the predictive value of an innovative densitometric technique, the Radiofrequency Echographic Multi Spectrometry (REMS) [3], in detecting bone fragility in patients affected by osteoarthritis.

Methods: The T-score values of 35 postmenopausal women with clinical and/or radiological signs of osteoarthritis (mean age 71 years, average BMI 24.2) obtained by DXA at lumbar spine and femoral neck were compared with those obtained by REMS technique performed in the same anatomical sites.

Results: In all the subjects, LS T-score resulted significantly higher than the FN one according to DXA measurement. However, REMS

outcomes in both the sites were significantly lower than the corresponding DXA measurement (significant difference between DXA and REMS T-score for both LS ($p = 0.006$) and FN ($p = 0.010$), and spinal REMS T-scores resulted more similar to femoral REMS (average REMS T-score LS: -2.6 ± 1.6 vs T-score FN: $-2.4 \pm 0, 6$) and to femoral DXA values.

Conclusion: These preliminary data suggest that REMS technique, which has been shown to have high sensitivity, specificity and accuracy when compared with DXA in diagnosing and monitoring osteoporosis [3], is not affected by the presence of altered soft tissues composition. It would therefore be particularly useful for the evaluation of bone fragility in subjects at risk of osteoarthritis.

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SAT0538 THE LEVEL OF AGREEMENT BETWEEN CLINICAL EXAMINATION AND ULTRASONOGRAPHY IN EARLY ARTHRITIS

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Background: Over the past decades, Early Arthritis Clinics (EAC) have been created to identify early arthritis and institute appropriate treatment as soon as possible. In Rheumatoid Arthritis (RA) many studies show that ultrasonography (US) is superior to clinical exam for the detection of synovitis and has good correlation with clinical findings and markers of inflammation and can be used to improve the certainty of a diagnosis of RA.¹ However, few studies address the agreement between the US with the clinical examination in patients with early arthritis.

Objectives: To evaluate the agreement between clinical examination and US findings of metacarpophalangeal and proximal interphalangeal joints of patients with early arthritis

Methods: Patients from the EAC of our department with suspect arthralgia were included. Patients were submitted to clinical evaluation by a rheumatologist to identify tender and swollen joints. They were then submitted to an US examination of metacarpophalangeal (MCP) and proximal interphalangeal (PIP) joints, by an experienced sonographer oblivious of the previous examination. Each joint was scored for the presence of synovial hypertrophy (SH) and Power Doppler (PD) signal. Based on OMERACT guidance, we defined synovitis as: \geq grade 1 grey scale synovitis (hypochoic SH regardless of the presence of effusion) and \leq grade 1 power-Doppler. The diagnostic value of clinical evaluation was assessed through sensitivity, specificity, Negative predictive value (NPV) and Positive predictive value (PPV), assuming the US synovitis as gold standard. Clinical arthritis was defined by joint swelling. Cohen's kappa coefficient was used to analyse concordance between joint swelling appreciated by clinical exam and HS, PD and the presence of US synovitis. Kappa values < 0 were considered poor, 0-0.20 slight, 0.21-0.40 fair, 0.41-0.60 moderate, 0.61-0.80 good and 0.81-1.00 excellent.² Statistical significance was defined as $p < 0.05$. Statistical analysis was performed using IBM SPSS Statistics, version 21.0.

Results: 77 consecutive patients were included (53.2% female) with a mean age of 53.8±19.1 years. We evaluated 770 MCP and 770 PIP joints. The sensitivity and specificity of clinical examination in relation to US synovitis was respectively 71% and 60% for MCP and 54.5% and 43.9% for PIP. The NPV and PPV for MCP were 87.8% and 33.3% respectively, and for PIP were 85.3% and 13.9%. The level of agreement between joint swelling and HS, PD and the presence of synovitis is show on Table 1.