Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.7122

THURSDAY, 15 JUNE 2017

Ultrasound advanced I & II

SP0075 ULTRASOUND AND MAGNETIC RESONANCE IMAGING FUSION OF IMAGES EVALUATION OF TENOSYNOVITIS – A PILOT STUDY ON A NEW IMAGING TECHNIQUE IN RHEUMATOID ARTHRITIS PATIENTS

M.A. Danielsen[1,2]. *[1]Copenhagen Center for Arthritis Research, Center for Rheumatology and Spine Diseases, Rigshospitalet, Glostrup; [2]Department of Clinical Medicine, University of Copenhagen, Copenhagen, Denmark*

Background/Purpose: Image fusion is an advanced imaging technology, which enables fusion of ultrasound (US) and magnetic resonance imaging (MRI). This fusion gives for each US probe position an exact projection of the corresponding anatomical area on a previously obtained MR image, during a live US assessment. This study is the first to address image fusion of US and MRI tenosynovitis.
The aim of this study was to assess and compare US and MRI visualisation of tenosynovitis using image fusion technique.
Methods: Fifteen rheumatoid arthritis patients with US verified tenosynovitis in the wrist or hand had an MRI performed of the affected wrist or hand. A subsequent image fusion was performed, i.e. the MR images and a live US assessment of one tendon sheath were fused. In order to compare the two imaging modalities quantitatively, the area of the tendon and tendon sheath in the transverse axis was measured on US and MRI for each image fusion. Due to partial volume artefacts (voxel containing two different tissues and therefore possessing a signal average of tendon and tendon sheath) on MRI two measures were performed; area 1) the circumference of the black tendon, i.e. excluding voxels containing two types of tissue 2) the circumference of the grey line that surrounds the black tendon, i.e. including voxels containing two types of tissue. Tenosynovitis was assessed using the proposed OMERACT semi-quantitative scoring system for US and MRI. US scoring was therefore based on both grey scale and Doppler, whereas MRI scoring was based only on post-contrast tenosynovial enhancement, measured as distance from the tendon to end of the enhanced tendon sheath.
Results: The median circumference area of the tendons and tendon sheaths on US and MRI 1 and 2 were respectively 0.16 (25;75 pctl: 0.10;0.25), 0.9 (0.06–0.18) and 0.13 of (0.10;0.25) for the tendons and 0.18 (0.13–0.26), 0.27 (0.20–0.45) and 0.23 (0.16–0.40) for the tendon sheaths. Statistically significant differences were found for all measured areas between US and MRI, except for the US tendon area and the MRI tendon area 2 (Wilcoxon's test; p=0.47). Overall agreement between US and MRI tenosynovitis scoring systems was good (see table 1).
Conclusion: In conclusion, we found that US and MRI have good agreement for quantitative assessment of tendons and scoring of tenosynovitis, when comparing the two modalities using image fusion, if the partial volume artefacts on MRI are included in the measure.
Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.7204

SP0076 HOW AND WHEN TO ASSESS THE CERVICAL FACET JOINTS + DEMO

D.A. Bong[1,2] on behalf of EULAR Working Group Anatomy for the IMAGE.
[1]Instituto Poal de Reumatologia; [2]University of Barcelona, Barcelona, Spain

At any given time, 10% of the adult population will be affected by neck pain. Although similar in incidence to low back pain, its has less of a socio-economic impact and uncommonly progresses to neurologic deficit. Pain may result from degenerative, traumatic or inflammatory processes involving the diarthrodial facet (zygapophyseal) joints and/or the facet (medial branch of the dorsal dorsal rami) nerves. Although routinely evaluated by radiography, magnetic resonance imaging and computed tomography, high-resolution musculoskeletal ultrasound (MSKUS) imaging and guidance has become increasingly popular, particularly among pain management specialists, in the evaluation and treatment of these structures owing to its safety, portability, superior resolution and direct real-time visualization. This presentation will discuss the unique anatomy and sonoanatomy of the cervical spine and its innervation/vascularization with particular focus on the facet joints and nerves and the use of MSKUS in the evaluation and treatment of the facet joint/nerve with review of available evidence. Examination technique and sonoanatomic findings will be demonstrated.
Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.7170

SP0077 HOW TO EVALUATE JOINTS IN JUVENILE IDIOPATHIC ARTHRITIS (JIA)

J. Vojinovic. *Pediatric Rheumatology, Clinical Centre, Medical Faculty, University of Nis, Nis, Serbia*

Ultrasound (US) has numerous advantages when used to examine joints in children compared to other imaging modalities. This include non-invasiveness, rapidity of performance, easy repeatability, high patient acceptability and lack of exposure to ionizing radiation. In addition, it does not require sedation for scanning in younger children. US is more sensitive than physical examination and may detect early disease that is not evident on physical examination. Lack of standardized precise definitions of grey scale (GS) and Power Doppler (PD) US findings in different age groups was the biggest limitation for its use. Additional difficulty is age dependent variability of normal sonoanatomy, due to maturation and ossification in children. That is why acquisition, interpretation and comparison of US images are completely different than in adults and had to be addressed specifically. All this may affect the validity of the technique, and without defined standardized examination technique, US can be a challenge in the childhood population. On the other hand, US as an imaging technique is considered to be examiner and equipment dependent. Studies resulting in good intra and inter-reader reliability and validity, based on specific definitions, are essential for its application as a diagnostic tool. Recently developed standardized image acquisition methodology, definitions of joint components in healthy children, as well as, definitions for synovitis components and its grading in GS and PD in children will be presented in details.
US allow precise and thorough visualization of inflammatory and destructive joint abnormalities, including synovial hyperplasia, joint effusion, cartilage damage, bone erosion, tenosynovitis and enthesopathy. In JIA ultrasound is considered particularly useful for its ability to detect subclinical synovitis and improve classification of JIA patients into the subtypes. Current evidences about application of ultrasound in JIA can improve definition of remission necessary to optimize treatment strategies. Due to peculiarities of US examination and image acquisition in children additional educational efforts among pediatric rheumatologists are required for expanding this imaging modality in daily practice.
Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.7186

THURSDAY, 15 JUNE 2017

PsA: an integrated perspective

SP0078 CAN IMAGING BE A PREDICTOR OF PSORIATIC DISEASE?

M. Østergaard. *Copenhagen Center for Arthritis Research, Copenhagen University Hospital Rigshospitalet, Glostrup, Denmark*

Early detection of inflammatory joint diseases is very important to allow prompt initiation of effective therapies. Identifying patients with early arthritic disease can be challenging by conventional clinical, laboratory and radiographic methods, and more advanced imaging modalities such as computed tomography (CT), magnetic resonance imaging, ultrasonography (US) and various nuclear medicine techniques can provide additional information.
This talk describes the current knowledge on the value of different imaging modalities for 1) predicting development of psoriatic disease in undifferentiated patients 2) predicting development of psoriatic arthritis (PsA) in patients with psoriasis with and without musculoskeletal pain and 3) predicting the disease course in patients with PsA.
Disclosure of Interest: None declared
DOI: 10.1136/annrheumdis-2017-eular.7188

SP0079 PATHOLOGIES ACROSS THE TISSUES IN PSA

R. Lories. *Skeletal Biology and Engineering Research Center - Dept. Development & Regeneration, KU Leuven, Leuven, Belgium*

The psoriatic disease concept includes the skin disease psoriasis and joint disease psoriatic arthritis. Increasingly, prevalent comorbidities such as obesity and cardiovascular disease are considered to be an integral part of the psoriatic disease concept in many patients.
Within this disease concept, accumulating evidence indicates molecular and cellular cross talk between affected organs and tissues. Skin inflammation affects the bone; nail disease is associated with specific types of arthritis; inflammation links to cardiovascular disease; skin or joint disease may contribute to depression. Novel therapeutic strategies are reaching psoriatic disease patients as never before. Their global impact could be envisioned from a holistic perspective, optimizing the strategy chosen as determined by the active molecular and cellular network that triggers and sustains disease.
Thus, linking the joints with the skin and other organs involved is proposed as an entry point towards personalized medicine in a complex disease.
Disclosure of Interest: R. Lories Grant/research support from: Celgene, Boehringer-Ingelheim, UCB, Consultant for: Janssen, Celgene, Novartis, Pfizer, UCB, Abbvie, Speakers bureau: Janssen, Celgene, Novartis, Pfizer, Merck, UCB, Abbvie