Fluorescence optical imaging Xiralite® is helpful in the decision for rituximab re-therapy in patients with rheumatoid arthritis

Sarah Ohrdorf1, Lisa Richa1, Anne-Marie Gilmm1, Gerd Rüdiger Burmester2, Gabriela Schmitt1, Marina Backhaus1, Jens Klotsche2.

1. Charité Universitätsmedizin Berlin, Department of Rheumatology and Clinical Immunology, Berlin, Germany; 2. Deutsches Rheumafororschungszenrum (DRFZ) Berlin, A Leibniz Institute, Berlin, Germany

Background: Rituximab (RTX) is an effective and well-tolerated therapeutic option in rheumatoid arthritis (RA) patients with insufficient response to TNFi inhibitors. However, the exact time point of RTX re-therapy often varies and objective parameters (e.g. imaging, such as MRI and/or musculoskeletal ultrasound [US]) are not yet included in the RA treatment strategy [1].

Objectives: The aim of this study was to evaluate the ability of the fluorescence optical imaging Xiralite® (FOI) to predict RTX re-therapy in RA patients - in comparison to clinical, laboratory and US.

Methods: In this study, n=31 patients with established RA were included and prospectively followed over one year by DAS28, patient’s VAS and CRP. At baseline (before RTX), and after 3, 6, and 12 months. The need for RTX re-therapy was defined according to DAS28 response criteria by EULAR [3].

Results: Of the included 31 patients (female 77.4%, mean age 60.1 ±11.4, mean disease duration 14.9±7.1 years), n=14 (45.2%) received RTX re-therapy within 12 months: n=3 after 6months (mths), n=4 after 7mths, n=5 after 9mths, and n=2 after 10mths. In the group with RTX re-therapy, FOI in PVM mode was the only parameter that presented significant increase (beta 0.40, CI 0.08-0.71; p=0.013) – compared to the group without re-therapy. In the prediction model via receiver operating characteristic (ROC) analysis, FOI in PVM reached the highest values of all imaging parameters (phases 1-3, US) at baseline for the prediction of re-therapy over one year with an area under the curve (AUC) of 0.64 (OR 0.9, CI 0.79-1.03), however, without significance (p=0.117). Patient’s VAS and CRP had similar predictive power with AUC of 0.66 each (each p=ns).

Conclusion: The FOI Xiralite® in PVM is able to discriminate between groups with and without need for RTX re-therapy better than other included imaging parameters. It is able to predict the need for RTX re-therapy with comparable predictive power to patient’s VAS and CRP. At the same time, FOI is a more objective tool, while patient’s VAS and CRP can also depend on other influence (i.e. psychological, infectious) factors.

REFERENCES

SUBCLINICAL ENTHESEAL INVOLVEMENT IN LOWER LIMBS IN PATIENTS WITH TYPE 2 DIABETES MELLITUS: AN ULTRASOUND STUDY

Mohamed Omar1, Mohamed Abdelkareem2, Mohammed Moneer2, Mohamed Elwan3. 1Alazher, Rheumatology, Asuit, Egypt 2Alazher, Rheumatology, Assuit, Egypt

Background: Diabetes mellitus (DM) is a group of metabolic diseases characterized by hyperglycemia, which results from defects in insulin secretion, insulin action, or both (1). DM impacts the connective tissue and causes various changes in peri-articular and articular structures. An increase in enthesopathic complications in diabetic patients such as patellar tendinitis bursitis, achilles tendinopathy and plantar fasciitis, was observed in many studies.

Methods: This study was carried out on 80 persons. Diabetic group forty patients diagnosed as diabetes according to ADA diagnostic criteria. Control group Forty apparent healthy volunteers both groups was matched at age and sex. Sonographic evaluations and scoring were performed according to Glasgow Ultrasound Enthesitis Scoring System (GUESS) on the entheses of both lower limbs.

Results: At the diabetic group the musculoskeletal ultrasound findings was as following. The Quadriceps tendon enthesis in 30 patients (75%), proximal patellar enthesis was in 28 patients (70%), Distal patellar enthesis was in 22 patients (55%), Achilles enthesis in 27 patients (67.5%) & plantar aponeurosis enthesis in 25 patients (55%). There is a statistically significant difference between age and Ultrasound findings p. value <0.05. There were calculated for IRR, Spearman’s rank (rs) and Pearson’s (rp) correlation coefficients for construct validity and Blizard-Allman plots for extent of agreement between ultrason and MRI.

DISCUSSION

Enthesal abnormalities can be documented by ultrasonography and (proximal patellar ligament, Achilles tendon, quadriceps tendon <0.05). There is a statistically significant correlation between disease duration and (proximal patellar ligament, Achilles tendon, quadriceps tendon <0.05). There is a statistically significant difference between age and Ultrasound findings p. value <0.05. There was a statistically significant correlation between disease duration and (proximal patellar ligament, Achilles tendon, quadriceps tendon and plantar fascia) thickness p. value <0.05.

Conclusion: Enthesal abnormalities can be documented by ultrasonography in clinically asymptomatic patients with Diabetes. These findings could be related to a subclinical enthesal inflammation.

REFERENCES


Disclosure of Interests: None declared

RELIABILITY AND VALIDITY OF ULTRASOUND PATHOLOGIES IN KNEE OSTEOARTHRITIS FOR SEMI-QUANTITATIVE AND QUANTITATIVE METHODS WITH MRI AS A REFERENCE

Win Min Oo1, James Linklater2, Xia Wang1, Matthew Daniel1, Danielle Pryke2, Shirley Yu3, Leticia Deveza1, Vicky Dong1, David Hunter1. 1Rheumatology Department, Royal North Shore Hospital and Institute of Bone and Joint Research, Kolling Institute, University of Sydney, Australia, Sydney, Australia; 2Department of Musculoskeletal Imaging, Castlemare Sports Imaging Center, St.Laurids, Sydney, Australia, Sydney, Australia; 3Department of Rheumatology, Assuit, Egypt

Background: Ultrasound can visualize both structural and inflammatory changes of osteoarthritis (OA) with greater accessibility. Therefore, the Outcome Measures in Rheumatology (OMERACT) Ultrasound Task Force recently proposed a semi-quantitative knee ultrasound scoring system1 which requires further validation.

Objectives: To investigate inter-rater reliability (IRR) of ultrasound pathologies between three raters with varying experiences and examine construct validity of these features against magnetic resonance imaging (MRI) using OMERACT semi-quantitative ultrasound image atlas and quantitative ultrasound measures.

Methods: According to standardized OMERACT scanning protocol, 20 participants with symptomatic and radiographic knee OA were scanned dynamically with a multi-frequency linear transducer (6-18 MHz) of Apio Platinum 500 machine, Toshiba, Japan.

Following an initial calibration of ultrasound scores using the image atlas, three raters with varying experience (a physician operator certified with RHiMSUS, a musculoskeletal ultrasonographer and a medical student) independently obtained semi-quantitative scores (0-3) for synovitis and power Doppler activity in suprapatellar recess, medial osteophytes and medial meniscal extrusion, as well as quantitative measurements (mm) of synovitis, effusion, synovial hypertrophy, medial osteophyte and meniscal extrusion (maximal measures).

Results: Semi-quantitative MRI Osteoarthritis Knee Score (MOAKS) scores of effusion-synovitis, osteophyte and meniscal extrusion were independently calculated by an experienced researcher. 3-T Sagittal proton-density (PD) weighted fat-suppressed turbo spin-echo (TSE) non-contrast MRI sequences were used for quantitative effusion-synovitis, and coronal plane for osteophyte and meniscal extrusion.

Weighted kappa coefficient (Kw) and intra-class correlation coefficient (ICC) were calculated for IRR, Spearman’s rank (rs) and Pearson’s (rp) correlation coefficients for construct validity and Blizard-Allman plots for extent of agreement between ultrasound and MRI.

Figure 1