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

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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 periarticular and articular structures. An increase in enthesopathic complications in diabetic patients such as patellar tendinitis bursitis, achilles tendinopathy, and plantar fascitis, was observed in many studies. Diabetes mellitus. British journal of sports medicine, 37, 30-35.

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 (GEISS) on the enthesis of both lower limbs.

Results: At the diabetic group the Musculoskeletal Ultrasound findings was as following. The Quatieps tendon enthesis in 30 patients (75%), proximal patellar enthesis was in 28 patients (70%), Distal patellar enthesis 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 is 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

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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 (6-18MHz) of Aplo 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 RhMSUS, 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).

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

Table 1. Inter-rater reliability of three observers of ultrasound pathologies in OA.

<table>
<thead>
<tr>
<th>Pathology</th>
<th>Observer</th>
<th>No. of MRI</th>
<th>MOAKS</th>
<th>Effusion</th>
<th>Synovitis</th>
<th>Osteophyte</th>
<th>Meniscal Extrusion</th>
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<td></td>
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<td>0.49</td>
<td>0.33</td>
<td>0.35</td>
<td>0.18</td>
</tr>
</tbody>
</table>

Semi-quantitative MRI Osteoarthritis Knee Score (MOAKS) and Ultrasound Osteoarthritis Knee Score (UOAKS) were compared for inter-rater reliability (IRR) and construct validity using OMERACT ultrasound image atlas and OMERACT semi-quantitative ultrasound image atlas.

Disclosure of Interests: None declared


Scientific Abstracts

Figure 1

Figure 1. Baseline ultrasound images of the agreement between ultrasound and MRI quantitative measures: (a) effusion, (b) synovitis, (c) synovial hypertrophy, and (d) bone erosions. The solid lines represent the mean difference and the dotted lines represent the 95% limits of agreement for the differences.