

**ABSTRACT NUMBER: 2404**

# Prevalence of Subclinical Enthesal Involvement in Children and Adolescents with Type 1 Diabetes: A Case Control Study

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## SESSION INFORMATION

**Date:** Tuesday, November 15, 2016

**Session Type:** ACR Poster Session C

**Session Title:** Pediatric Rheumatology - Clinical and Therapeutic Aspects - Poster III: Systemic JIA, Autoinflammatory Syndromes, Scleroderma, Vasculitis, Miscellaneous

**Session Time:** 9:00AM-11:00AM

**Background/Purpose:** The clinical course of type one diabetes (T1D) is frequently complicated by musculoskeletal manifestations such as Dupuytren's disease, trigger finger, shoulder adhesive capsulitis and in general tendinopathies (1). In a recent review Abate et Al. underline that an accepted hypothesis identified in the excess of advanced glycation end products (AGEs) the cause of tendon damages in T1D. There are several demonstrations that AGEs are able to form a covalent cross-link within collagen fibres causing a distortion of collagen layers that altered tendons structure and functionality (2). Previous ultrasonographic evaluations of diabetic patients tendons reported the presence of intratendinous areas with dishomogeneous ecostructure and an increase of normal tendon thickness. Up to now, at the best of our knowledge, no data about the ultrasonographic evaluation of T1DM patients entheses has been published.

**Methods:** Twenty-three children and adolescents (12 M 11 F) affected by T1D, mean ages 13.9 years (range 9-18 yrs), mean disease duration 60 months (range 10-161 months), without any clinical sign or symptom of musculoskeletal involvement. A control group of 28 sex (12 M 16 F) and age-matched (14.2 years, range 8-18 yrs) was also evaluated. Both groups underwent an ultrasound examination with ESAOTE MyLAB 70 (Genova, Italy) equipped with 6-18 MHz linear array transducer. Brachial triceps, femoral quadriceps, Achilles, plantar fascia, and proximal and distal patellar entheses were all scored according with the 0-136 Madrid Sonographic Enthesis Index (MASEI).

**Results:** The percentage of entheses with ultrasonographic revealed thickness (22.6% Vs 16.1% p=0.04) and with dishomogeneous ecostructure (2.9% Vs 0% p=0.001) was statistically higher in T1D group. No difference has been observed in terms of percentage of bursitis presence (3.4% Vs 2.7% p=0.76), percentage of entheses with power Doppler score  $\geq 2$  (2.5% Vs 1.2% p=0.21), erosions (0.4% Vs 0.3% p=0.89) or calcification (4.7% Vs 3.3% p=0.76). Hyperechoic spots can be observed at the level of the distal part of tendons in a percentage of T1D patients statistically higher than in controls (43.5% Vs 8.7%; p=0.0046).

**Conclusion:** In our study we observed that, even at the enthesis level, T1D patients present an higher percentage of thickness and dishomogeneity in echostructure when compared with an healthy control group. More investigations about the hyperechoic spots detected at the level of the distal parts of the tendons are needed. **References:** 1. Tom A Ranger et Al. "Is there an association between tendinopathy and diabetes mellitus? A systematic review with meta-analysis." Br J Sports Med 2015; 094735 2. Michele Abate et Al. "Occurrence of tendon pathologies in metabolic disorders" Rheumatology 12, 2013

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**Disclosure:** **A. Batticciotto**, None; **A. Scaramuzza**, None; **M. Ferrari**, None; **M. C. Ditto**, None; **M. C. Gerardi**, None; **F. Atzeni**, None; **P. Sarzi-Puttini**, None.

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