

## P8

### Patients with unilateral Charcot foot: affected versus unaffected foot comparison

T.Tsvetkova<sup>1</sup>, V.Bregovsky<sup>2</sup>

<sup>1</sup>novel SPb LLC, <sup>2</sup>City Diabetological Center, Saint-Petersburg, Russia

**Objective:** To study biomechanical changes in patients with unilateral chronic Charcot arthropathy. **Methods:** 24 patients (23 insulin dependent) with unilateral Charcot foot (medial convexity or/and rocker-bottom) without amputations were evaluated. 12 patients were available for repeated examination. Rocker-bottom deformity was revealed after 2 and 5.5 years on contralateral feet of 2 patients, minor amputations resulted in exclusion of 1 patient, the other could not walk without assistance. Pedography for affected and contralateral feet was performed with emed-AT 25 system (novel, Munich). **Results:** Peak and mean pressure, maximum force, pressure-time and force-time integrals beneath all anatomic foot areas (except lesser toes) were statistically significant ( $p < 0.001$ ) for affected versus unaffected feet comparison. No differences were found in instant of maximum force beneath the foot, hindfoot, and midfoot; in instant of peak pressure beneath hindfoot, second-fourth metatarsal heads, and lesser toes. Follow-up measurements showed significantly increased peak ( $p < 0.001$ ) and mean pressure ( $p < 0.006$ ), maximum force ( $p < 0.05$ ), and pressure-time integral ( $p < 0.05$ ) beneath first metatarsal head and big toe in rocker-bottom feet and decreased force-time integral ( $p < 0.005$ ) in combination with decreased contact time ( $p = 0.001$ ) beneath big toe - in contralateral feet; significantly decreased mean pressure ( $p = 0.001$ ), maximum force ( $p < 0.001$ ) and force-time integral ( $p < 0.001$ ) beneath second metatarsal head - in feet with medial convexity; significantly decreased peak and mean pressure, maximum force, pressure-time integral beneath second metatarsal head in concert with increased pressure-time ( $p < 0.001$ ) and force-time integrals ( $p < 0.005$ ) beneath hindfoot - in contralateral feet. **Conclusions:** The first ray is the most prominent anatomic structure to bear loading. A higher load may give an additional stability for patients with rocker-bottom. Decrease of loading second metatarsal heads in medial convexity foot is caused with increasing loading of medial part. Unaffected foot is playing a greater role in weight bearing resulting in significant loading of hindfoot.