

**Which shoes prefer diabetic patients with Charcot foot?**

A.Demina<sup>1</sup>, V.Bregovskiy<sup>1</sup>, T.Tsvetkova<sup>2</sup> and I.Karpova<sup>3</sup>,

1 - Almazov Federal Heart, Blood and Endocrinology Centre; 2 - novel SPb LLC;

3 - City Diabetes Centre; St-Petersburg, Russia

**Objective:** To study the use of orthopedic (Ort) and non-orthopedic (nOrt) shoes in diabetics (DM) with non-active Charcot arthropathy (CA). **Methods:** 173 CA patients were examined. Footwear was classified as walking shoes, athletic shoes, off-the-shelf orthopedic, bespoke footwear. Activity of patients was classified as normal, slightly restricted and severely restricted. Geometric parameters based on plantar pressure measurements during gait were assessed in patients with midfoot CA and compared with non-CA feet. Pedography was performed with emed-AT 25 system (novel, Munich). **Results:** Mean age 51,2±11,0 yrs, DM duration 19,0±10,0 yrs. Type DM1/DM2: 48/52%. 48% of pts had a history of minor amputation and 73% - foot ulcer. Activity: normal - 50%, slightly restricted - 32%, severely restricted - 18%. Localization of CA: forefoot - 26,5%; midfoot - 64%; hindfoot - 2,5% and others - 7%. Walking shoes were used 43% of pts, 28% used athletic shoes, 17% - off-the-shelf orthopedic and 10% - bespoke footwear. Patients wearing Ort shoes (group 1) were older compared with nOrt (group 2): 54,3±8,0 vs 50,1±11,0 yrs;  $p<0,038$ . Duration of the DM was longer in group 1 vs group 2: 23,0±9,0 vs 18,0±10,1 yrs;  $p=0,001$ . History of foot complications was more frequent in group 2 (78,4% vs 58,3%) as well as the number of multiply minor amputations 50% vs 33% ( $p<0,05$  for both). Activity and localization of CA did not significantly differ between the groups. Male/female ratios: group 1 - 34/66%; group 2 - 46/54% ( $p<0,05$ ). Forefoot and hindfoot width did not significantly differ between CA and non-CA feet. Midfoot width in CA feet was 6,01,4 sm. and in non-CA - 3,3±0,9 sm. ( $p<0,001$ ). Instep width was 2,3±1,3 sm. in CA feet and 4,9±0,7 sm. in non-CA feet ( $p<0,001$ ). **Conclusions:** The use of Ort footwear was low in a studied group. Female with long-standing DM are more likely to use the Ort shoes. Activity and type of CA did not influence on the use of the orthopedic shoes. Probably the absence of the differences in geometric parameters of the forefoot between CA and non CA feet allowed for many patients to wear non-orthopedic shoes because the large width of the midfoot could be tolerated by stretching shoes or not using laces, etc. It is appears that underuse of special footwear is explained with low quality of such footwear rather than patient's characteristics.