

P28

Individual approach to off-loading in patients with diabetes mellitus

Diamanto Maliotou¹, Tatiana Tsetkova²

¹foot-forward,62 Ifigenias str. 3rd floor, 2003 Nicosia,Cyprus

Novel SPb, ST. PETERBURG, Russian Federation²,

Background and Objective: Foot pressure studies can be used in patients with diabetic neuropathy to predict and as management tools to determine the specific areas under the foot that are prone to ulceration (Boulton et al 1983 and Veves et al 1992). The comfort of an insole, footwear can often not be perceived by the neuropathic patient. This study aimed to prove that custom-made insoles off-load effectively the feet of patients with diabetes mellitus and foot deformity. **Methods:** 9 patients with different deformities (hallux limitus, forefoot adduction, forefoot abduction, forefoot valgus, pes planus and pes cavus and its combination) were examined with and without customized insoles using pedar in-shoe measurement system. Peak pressure, maximum force, force-time and pressure-time integrals, contact area, and contact time were compared in the insole versus without insole trials with one-factor ANOVA. **Results:** Reductions in peak pressure and pressure-time integral beneath the foot ($p<0.001$) and medial forefoot ($p<0.001$), and pressure-time integral beneath lateral forefoot ($p=0.006$) and increased total contact area ($p<0.001$) in concert with increased contact area beneath second-fifth toes ($p=0.002$) and midfoot ($p<0.001$) were statistically significant for the insole versus no insole comparison. No significant differences were found for maximum force and force-time integrals as well as for time parameters. At the same time significant reduction of peak pressure, maximum force, pressure-time and force-time integrals were found in individual patients in the foot areas of off-loading. Character of gait line was visually changed. **Conclusions:** Custom-made insoles really off-load the areas of excess loading caused with existing deformities. Redistribution of plantar pressure results sometimes in changes in gait line course (appearance of loop at the beginning and end of contact). In-shoe evaluation measurements are important to monitor the effective plantar pressure distribution.