Intraoperative Pedography Leads to Improved Clinical Outcome
Scores in a Randomized Controlled Trial

Presenting:
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Summary:
In 46% of the cases a modification of the surgical correction were made after Intraoperative Pedography (IP) in the same surgical procedure. The follow-up scores were higher in the group with IP than in the group without IP. We conclude that the modifications after IP improve the biomechanical function of the foot which improve the clinical outcome.

Background.
The purpose of this study was to assess the clinical use, and to analyze the potential clinical benefit of intraoperative pedography (IP) in a sufficient number of cases in comparison with cases treated without IP.

Methods.
Patients (age 18 years and older) which sustained an arthrodesis and/or correction arthrodesis of the foot and ankle were included, starting September 1, 2006. All subjects receive preoperative clinical and radiographic assessment and standard dynamic pedography. The subjects are randomized into two groups, a) use of IP, versus b) no use of IP. The IP of the foot that was operated on was used after the surgeon considered the correction process and the internal fixation to be optimal based on the surgeons experience including the evaluation of the clinical appearance of the foot, and c-arm images. In the IP group, the contralateral foot and the involved foot before correction were measured in the preparation area after the beginning of the anaesthesia. The following scores are used: American Orthopaedic Foot and Ankle Society (AOFAS), Visual-Analogue-Scale Foot and Ankle (VAS FA), Short-Form 36 (SF36, standardized to 100-point-maximum). Intraoperative consequences after the use of IP and any adverse effects were recorded. Follow-up including clinical examination, radiological studies, dynamic pedography, and foot and ankle focused was performed.

Results.
One hundred cases were included until April 11, 2008 (ankle correction arthrodesis, n=12; subtalar joint correction arthrodesis, n=14; arthrodesis without correction midfoot, n=15, correction arthodesis midfoot, n=26, correction forefoot, 33). The mean preoperative scores were as follows: AOFAS, 49.1±24.6; VAS FA, 45.3±21.2; SF36, 43.1±31.2. No score, age or gender distribution differences between the two groups occurred (scores, age, t-test, p=0.05; gender, chi2-test, p=0.8). Fifty-two patients were randomized for the use of IP. The mean interruption of operative procedure for the IP was 321±39 seconds. In 24 of the 52 patients (46%), the correction was modified after IP during the same operation. The changes were done most likely in midfoot correction arthrodeses (64%), and least likely in subtalar joint arthrodeses (25%). A following IP then did not lead to further changes in the correction. No
malfunctions of the IP system occurred. No complications related to the use of IP such as infection were observed. All patients completed follow-up after 6 to 24 months (12 months on average). The follow-up scores were AOFAS, 92.5±19.7; VAS FA, 90.2±13.4; SF36, 94.3±18.8. The scores at follow-up were significantly higher than the preoperative scores (t-test, p<.05). The scores at follow-up were significantly higher in the group with IP than in the group without IP (t-test, p<.05).

Conclusions.
In 46% of the cases a modification of the surgical correction were made after IP in the same surgical procedure. The follow-up scores were higher in the group with IP than in the group without IP. We conclude that the modifications after IP improve the biomechanical function of the foot which improve the clinical outcome.