Session 6: 1:12 pm

Retrograde Ankle Arthrodesis using an Intramedullary Nail: A Comparison of Patients with and without Diabetes Mellitus

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Summary:
On average, patients with DM demonstrated an improvement of 129% and patients without diabetes improved by 243%. With the numbers available, we were not able to confirm our hypothesis that patients with DM experienced significantly lower clinical outcomes than patients without DM. A study of 100 patients in each group would be necessary to achieve adequate power to conclusively state that DM had no impact on the final outcome.

Introduction:
Tibiotalocalcaneal arthrodesis (TTCA) has been used for the salvage of severe deformity involving the ankle and hindfoot. Various forms of internal fixation constructs have been utilized in this high risk group to include multiple screws, plates, external fixation and intramedullary devices. The purpose of this study was to evaluate the results of retrograde intramedullary nailing (IMN) for severe ankle/hindfoot pathology in a group of patients with diabetic neuropathy and compare them to a cohort of non-diabetic patients. Our working hypothesis was that patients with diabetes mellitus and neuropathy (DM) would experience inferior outcomes and more postoperative complications than patients who did not

Methods:
Forty consecutive patients (17 with DM and 23 without DM) who had a minimum followup of one year were retrospectively reviewed.

Results:
The mean followup was 33 months and the mean AOFAS Ankle Hindfoot Score significantly improved form 19 to 55. With the numbers available, we did find any significant differences between our two groups with regard to age, sex, BMI, preoperative hemoglobin levels, use of tobacco, length of surgery or history of previous surgery. Patients with DM had significantly higher ASA scores, fasting glucose levels and serum creatinine levels than patients without diabetes.
Higher rates of nephropathy, peripheral neuropathy and history of previous ulceration were also found in our patients with DM compared to those patients without DM. Patients with DM improved on average from 24 to 55 and patients without DM improved from 16 to 55. Although a postoperative complication was experienced in 59% of patients with DM compared to 44% of patients without DM, this difference did not reach statistical significance with the numbers available. More patients with DM utilized a brace at final follow up than patients without DM. Those patients who had a history of preoperative skin ulceration had higher rates of infection than those patients who did not have skin ulcers.

**Conclusion:**

On average, patients with DM demonstrated an improvement of 129% and patients without diabetes improved by 243%. With the numbers available, we were not able to confirm our hypothesis that patients with DM experienced significantly lower clinical outcomes than patients without DM. A study of 100 patients in each group would be necessary to achieve adequate power to conclusively state that DM had no impact on the final outcome.