THURSDAY, JULY 8, 2010

PAPER SESSION 1:
7:00 – 7:44 am

Ankle I

Moderators:

Eric M. Bluman, MD, PhD
Boston, Massachusetts

Stefan Rammelt, MD, PhD
Dresden, Germany

7:00 am
Plantar Pressure Distribution after Tibiotalar Arthrodesis

Presenting: Reinhard Schuh, MD (Innsbrook, Tyrol, Austria)
Samuel Adams, Jr., MD; Stefan G. Hofstaetter, MD; Hans-Jorg Trnka, MD; Jochen G. Hofstaetter, MD

Summary: Plantar pressure distribution in patients who underwent ankle arthrodesis for the treatment of isolated unilateral osteoarthritis of the ankle was assessed.

Introduction: Arthrodesis has been recommended for the treatment of end-stage osteoarthritis of the ankle joint, especially as the results of prosthetic ankle replacement are not comparable with those achieved with total hip or knee replacement. In vitro studies revealed that ankle arthrodesis restricts kinematics more than total ankle replacement in terms of range of motion as well as movement transfer. However, little is known about in vivo gait patterns in patients with arthrodesis of the ankle joint.

Aim of this retrospective study was to determine plantar pressure distribution in patients who underwent ankle arthrodesis with a standardized screw fixation technique in a single surgeon population.

Methods: 21 patients (7 male/14 female) who underwent isolated unilateral ankle arthrodesis with 3 crossed 7,3 mm AO screws (Synthes, in a standardized technique by a single surgeon between October 2000 and January 2008 have been included in this study. At a mean follow-up of 25 months (range 12 – 75) pedobarography (Novel GmbH., Munich), clinical evaluation using the AOFAS hindfoot score and standing x-rays of the foot were performed.

Results: 19 patients were available for follow-up. Non-union didn’t occur in any patient. 16 patients have been very satisfied with the result of the operation, 2 patients were satisfied and one patient was not satisfied with the result of the operation. Pedobarographic assessment revealed no statistically significant difference between operated foot and the contralateral foot eighter in terms of peak pressure, maximum force, contact area and contact time or the gait line parameters velocity of center of pressure, lateral-medial force indices or lateral-medial area indices.

The average AOFAS score was 80,5 (range 46 – 92) and mean tibioplantar angle determined on the lateral standing radiograph was 91° (82° - 100°).

Discussion: The results of the present study show that ankle arthrodesis restores plantar pressure distribution to almost physiological conditions like the contralateral foot.