

Title of Presentation:

Use of a Novel Three Dimensional Titanium Porous Scaffolding on Tibial Components to Promote Bone/Prosthesis Osseointegration

Author: David D. Waddell, MD, Shreveport, LA

Co-author: Paul Lux, M.D.

Learning Objectives (After attending this session, the attendee should be able to):

- understand the use of new technology in cementless knee technology.

INTRODUCTION

Survivorship and performance of cementless tibial components are closely related to their ability to resist forces at the bone / prosthesis interface. A novel, highly porous, foam metal material in the form of a titanium lattice has been developed to optimize osseointegration. The purpose of this study is to report on the early results of a series of cementless knees that utilize this foam metal material.

MATERIALS AND METHODS

One hundred and four knees in 89 patients were consecutively enrolled at 4 sites with a foam metal tibial component and beaded femoral component. Approximately 95% of the cases used screws to affix the tibial bases, whereas the remaining 5% did not. Radiolucencies, functional and pain outcomes were assessed at 6 months using the Knee Society systems.

RESULTS

Eighteen knees were unavailable for follow-up and 14 were not yet due for the 6 month visit, leaving 72 knees for follow-up. Demographics for age, BMI, and preop KSS were 64 years, 31, 53, respectively. A subvastus approach was taken in 68% of the cases, with the remainder being medial parapatellar. Mean KSS improvement from baseline at 6 months was 36 points, with 94% of knees reporting no or slight pain during walking. There were no radiolucencies identified out of the 10 KSS tibial component zones examined.

CONCLUSIONS

This novel three dimensional lattice exhibited no radiolucencies at the implant / bone interface even in the screwless tibias. The absence of great than slight pain suggests that this material is providing an environment for osseointegration. Longer term data will be collected to determine if absence of radiolucencies continues.