



# NASS 24<sup>TH</sup> ANNUAL MEETING

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## **Allograft shape does not influence clinical outcomes after ACDF**

San Francisco, CA — Researchers have found that lordotically shaped allografts did not increase cervical/sagittal alignment or improve outcomes. Maintaining a consistent segmental sagittal alignment or increasing segmental lordosis, however, was shown to be important to improved clinical outcome scores. The findings were presented today at the North American Spine Society's 24<sup>th</sup> Annual Meeting in San Francisco.

“Device manufacturers and tissue banks offer cervical allografts that come in various sagittal profiles, including lordotic, parallel or even convex designs that, according to indications, should restore lordosis, maximize surface area contact or allow for patient-specific needs,” said Alan Villavicencio, MD, director of the Minimally Invasive Spine Surgery Program, Boulder Neurosurgical Associates in Colorado. “However, these statements of long-term clinical outcomes have never been tested or proven in any prospective, randomized clinical studies (or any other kind of studies).”

Villavicencio and colleagues performed the first prospective, double blind, randomized study to evaluate cervical allografts in a clinical setting. The study included 122 patients who underwent single- or multilevel anterior cervical decompression and fusion (ACDF). The primary goal was to assess quantitatively and correlate sagittal alignment with clinical outcomes when lordotic or parallel allografts were used.

“These study results demonstrate that the allograft shape does not have any influence on clinical outcomes and does not improve or maintain cervical sagittal alignment,” Villavicencio said. “However, when we compared the changes in segmental sagittal alignment and clinical outcomes, we noticed that the maintenance or enhancement of cervical/segmental sagittal alignment was predictive of a higher degree of improvement in clinical outcome scores.”

Average patient age was 49.9 years (range, 17 to 80 years). Mean follow-up was 37.5 months (range, 12 to 54 months). Fifty-seven patients were randomly assigned to the lordotic allograft group and 65 patients were assigned to the parallel allograft group.

The lordotic allograft group included 29 single-level fusions, 23 two-level fusions and five three-level fusions. The parallel group had 37 single-level fusions, 21 two-level fusions and seven three-level fusions.

The researchers used the posterior tangent method on cervical lateral neutral radiographs to measure sagittal cervical and segmental alignment pre- and postoperatively. They prospectively

assessed clinical outcomes with the SF-36, the Neck Disability Index (NDI) and the Visual Analog Scale (VAS). The researchers also studied surgical data, hospitalization time, patient satisfaction and return-to-work time.

The mean postoperative cervical sagittal alignment was 18.6 degrees in the lordotic group and 18.2 degrees in the parallel group. Mean segmental sagittal alignment was 5.9 degrees in the lordotic group and 6.5 degrees in the allograft group.

The researchers found no statistically significant differences in the SF-36 PCS (44.9 vs. 45.3), the NDI (11.1 versus 11.5) or the VAS (2.8 versus 2.8) scores between the two groups.

Cervical segmental alignment that did not change or showed increased lordosis was linked to a statistically significant improvement in NDI and SF-36 physical component summary scores ( $P<0.037$ ).

“The results demonstrated that if you maintain the same — even if it is kyphotic — or increase segmental cervical lordosis, the patients had a significantly higher degree of improvement in the clinical outcomes compared to the patients who had a loss of the segmental sagittal alignment,” Villavicencio said.

“Maintaining sagittal alignment in ACDF surgery is a critical component of patient outcomes but is not influenced by the shape of the graft being lordotic or parallel.”

#### **About NASS**

The North American Spine Society (NASS) is a multidisciplinary medical organization dedicated to fostering the highest quality, evidence-based, and ethical spine care by promoting education, research, and advocacy. NASS is comprised of more than 5,500 members from several disciplines including orthopedic surgery, neurosurgery, physiatry, neurology, radiology, anesthesiology, research, physical therapy and other spine care professionals. For more information, visit [www.spine.org](http://www.spine.org).

#### **About NASS' 24<sup>th</sup> Annual Meeting**

NASS' 24th Annual Meeting is being held in San Francisco, November 10-14, 2009, at the Moscone Center South. For more information, or to view press releases related to the meeting, please visit [NASS' Annual Meeting Web site](#).