

**Abstract: 322**

**Comparing of Hybrid Arthroplasty, Fusion Surgery and Total Disc Replacement for the Treating of Two-level Cervical Degenerative Disease**

C.-H. Kao<sup>1</sup>

<sup>1</sup>CHI-MEI Foundation Hospital, Department of Surgery, Yung Kang City, Taiwan, Republic of China

**Purpose:** It has been demonstrated that fusion procedures may result in future adjacent segmental degeneration. This rationale led to develop cervical arthroplasty recently in the spinal society. Prior to undergoing cervical arthroplasty, we had utilized various fusion materials, such as cage and plate. Previous majority studies in cervical single-level disorders had shown clinical outcomes after arthroplasty were superior to those after fusion. This studies will focus on the possibly more benefit of 2-level cervical arthroplasty than fusion and hybrid arthroplasty.

**Methods:** Prospective study of 93 patients, operated with 2-level cervical disorders in our spine center was conducted from October 2004 to December 2008 with mean follow-up 36.22 months (10-60 months). We compared with three groups: group A : a series of 39 patients (15 women, 24 men; age 40-78 years) with anterior fusion, group B: 40 patients (12 women, 28 men; age 19-73 years) with artificial disc replacement, and group C: 14 patients (5 women, 9 men; age 28-63 years) with hybrid surgery. Clinical outcomes by the Japanese Orthopedics Association (JOA) Score, Odom's scale and Visual Analog Scale (VAS) were assessed pre- and post-operatively, blood loss, operation time and flexion-extension radiological measured the range of movement (ROM).

**Results:** In the investigational group, there were no cases of implant failure or migration. As expected, besides motion preservation, significantly ( $P < 0.001$ ) more improvement analyzed by VAS scores for axial neck pain was retained in the group B (from 8.6 to 1.7) than the group A (from 8.3 to 2.5), and Odom's scale had excellent or good outcomes in group B (34/39) and group C (9/14), but as to JOA scores, there was no statistically significant difference: the group B was from 13.8 to 15.2 and the group A was from 13.6 to 15.6. The blood lost (group A:B:C= 106.2cc:190.0cc:118.75cc) and average length of stay (group A:B:C=9d:8d:10d) in three groups is no significant difference. The operation time of group A is less than others (group A:B:C= 3.83h : 7.41h:6.64h). Increased ROM of the C group were from 5.75 to 15.08.

**Conclusions:** Surgical management of cervical disorders evolved forwards. In this study, the postoperative neurological improvements in the 2-level cervical degenerative disease show the arthroplasty group is equivalent to the arthrodesis group. 10 patients complained donor site pain in group A, 2 patients complained donor site pain in group. However, Cervical arthroplasty not only preserves motion but also offers good functional outcome such as postoperative neck pain relief. The result of this study suggests the long-term follow-up is necessary to investigate the adjacent degeneration.