

O-10

Anterior Cervical Discectomy and Fusion surgery: Age with plate fixation or Cage only – Analysis of a multicenter dataset.

Lovisa Gerdhem¹, Pavlos Vlachogiannis^{2,3}, Paul Gerdhem^{2,3}, Anna MacDowall^{2,3}

¹*Uppsala University Hospital, Department of Neurosurgery, Uppsala, Sweden*

²*Uppsala University Hospital, Department of Orthopedics and Hand Surgery, Uppsala, Sweden*

³*Uppsala University, Department of Surgical Sciences, Uppsala, Sweden*

Background: Anterior Cervical Discectomy and Fusion (ACDF) is used to treat several conditions of the cervical spine. Small sized studies have reported differences in radiological findings between cage with plate and cage only fusion techniques but no differences in clinical outcome, hence, larger studies are needed.

Research question: Whether ACDF with plate fixation is superior to ACDF with cage only.

Design: Retrospective study design on prospectively collected registry data.

Methods: Individuals treated for cervical degenerative radiculopathy, with ACDF using either cage with plate or cage only fixation were identified in a national spine registry. Patient reported outcome measures (PROMs) including the Neck disability index (NDI) as well as adverse events were used as outcomes with one year of follow-up. As secondary analysis, one or two levels of surgery were compared. The number of patients that reached the Minimum Clinically Important Difference (MCID) in NDI of 15 percentage points were compared between the groups. The Mann Whitney-U test was used for continuous variables and the Chi2 test for categorical variables.

Results: There were 334 individuals in the cage with plate group, and 344 in the cage only group. NDI improved more ($p = 0.007$) in the cage with plate group, -17.9 points (95% CI: -16.1 - [-19.8]) compared with the cage only, -14.0 points (95% CI: -12.2-[-15.8]) and more individuals reached MCID improvement in the cage with plate group (Table 1). A lower rate of hoarseness post-operatively was reported by the cage only group (OR: 0.65 [0.45-0.93], $p = 0.026$).

Discussion: Clinical improvement was seen in both groups, but the improvement of NDI was better in the cage with plate group and the rate of hoarseness was lower in the cage only group. Both techniques may be considered overall equally effective, however with a tendency towards the choice of cage with plate fixation in multilevel surgeries.