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Can multilevel standalone Cervical fusion replace multilevel plating in outpatient setting

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Introduction: Cervical fusion for degenerative disc disease continues to be the standard method of treatment. Anterior cervical discectomy and fusion (ACDF) and anterior cervical corpectomy and fusion (ACCF) combined with the use of plates are well-known surgical treatments in patients with two level anterior cervical disc diseases. Multi-level ACDF methods can also be subdivided into several different methods including ACDF using tricortical autograft and plate fixation (ACDF-AP), ACDF using stand-alone cage (ACDF-CA), and ACDF using cage and plate fixation (ACDF-CP). The authors aim to demonstrate the use of standalone cages in multilevel anterior cervical discectomy and fusion.

Methods: Retrospective review of prospectively collected data of 37 patients who had multilevel ACDF-CA compared to a historical cohort of 32 patient with multilevel ACDF-CP. Outcomes assessed where VAS scores, NDI and fusion rate.

Result: Of the 37 patients in Group 1 (ACDF-CA), 67% were female with the group's mean age being 52.8+/- 8.9 years and a mean BMI 30.6+/-7.1 kg/m². Of the 32 patients in Group 2 (ACDF-CP), 78% were female with the group's mean age being 55.7+/- 7.6 years and a mean BMI 32.1+/-6.4 kg/m². No statistical differences in gender, age or BMI were found between groups, p=0.843, 0.691 and 0.947 respectively. The demographics are summarized in Table 1, including

pathological levels treated and chief complaints (indication for operation).

There was no significance between preoperative VAS neck, arm and NDI scores between Groups 1 and 2, p=0.520, 0.83 and 0.43 respectively. Analysis of follow-up at the one-year period demonstrated that Group 1 mean preoperative VAS neck scores improved from 8.5+/-1.3 to 0.8+/-0.1 at one-year follow-up, p<0.001. Preoperative VAS arm scores improved from 6.1+/-1.9 to 1.1+/- 0.7, p<0.001. Preoperative mean NDI scores decreased from 33.6+/-3.7 to 11.6+/-1.3 at one-year follow-up, p<0.001. Group 2 mean preoperative VAS neck scores improved from 8.8+/-1.0 to 1.5+/-0.3 at one-year follow-up, p=0.001. Preoperative VAS arm scores improved from 6.7+/- 1.6 to 1.6+/-0.2, p<0.001. Preoperative mean NDI reduced from 35.8+/-2.5 to 12.8+/-1.7 at 1-year follow-up, p=0.001. 100% fusion was achieved in both groups with group 1 demonstrating sentinel sign as early as 6 months (Figure 1).

Conclusion: Stand alone anterior cervical fusion is gaining popularity with increase of less exposure techniques. This study shows that multilevel ACDF-CA is a feasible technique for outpatient cervical spine and can replace outpatient cervical fusion with plates.

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