

Cervical Arthroplasty for Moderate to Severe Disc Degeneration: Clinical and Radiological Assessments after a Minimum Follow-up of 12 Months

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Introduction

Clinical outcomes and radiologic result after cervical arthroplasty had been reported in many articles, but relatively few studies on clinical and radiologic results after cervical arthroplasty have been conducted in severe degenerative cervical disc disease.

Methods

Sixty patients that underwent cervical arthroplasty between April 2006 and December 2011 with a minimum follow-up of 12 months were enrolled in this study. Patients were divided into two groups using the Pfirrmann classification and preoperative cervical MR images: group A (Pfirrmann disc grade III, n=38) and group B (Pfirrmann disc grades IV or V, n=22). Clinical and radiological results were assessed before and after surgery

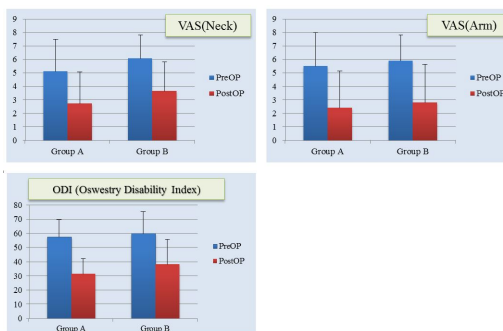
Results

No demographic difference was evident between the two study groups. In both groups, mODI and VAS scores significantly improved postoperatively ($p < 0.001$), but no significant intergroup differences were found between clinical score improvements. In cervical dynamic lateral radiographs, global, segmental, and adjacent ROMs were preserved or gradually improved until 12 months after cervical arthroplasty in both groups. Global ROM was more restricted in group B than in group A at 1 month after surgery, but both recovered to preoperative values at final follow-up. Segmental and adjacent ROMs were similar in the two groups during follow-up. No cases of device subsidence or extrusion were encountered.

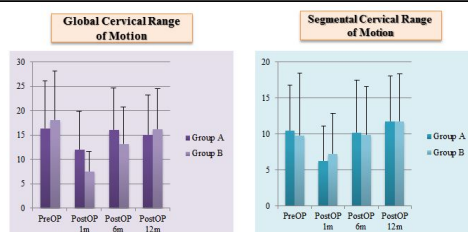
Conclusions

Although, longer follow-up and extensive comparative study are needed to prove the efficacy of cervical arthroplasty in patients with severe disc degeneration, clinical and radiological results following cervical arthroplasty in patients with severe degenerative cervical disc disease showed no differences versus those of patients with mild degenerative cervical disc disease after 12 months of follow-up.

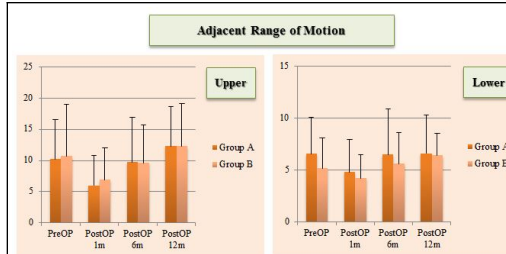
Clinical Assessments



Postoperative VAS improvement in group B for 12 months was less than in group A.

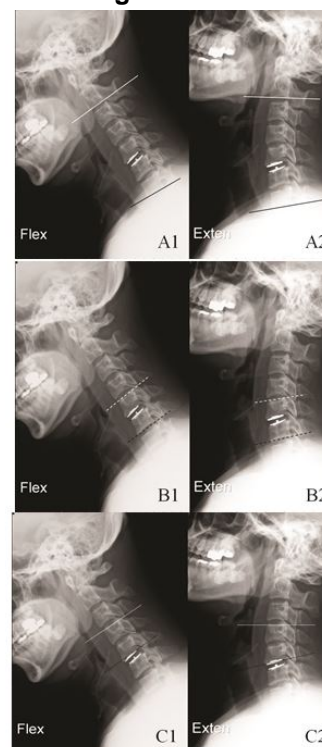


The only difference between global ROM in the groups was observed at 1 month postoperatively. Segmental ROM significantly decreased at 1 month postoperatively but not in group B.



In both groups, upper adjacent ROM was significantly poorer at 1 month postoperatively, but then gradually improved and to exceed preoperative ROM.

Radiologic Assessments



Global cervical range of motion(A1, A2), Segmental cervical range of motion(B1, B2), Adjacent segmental cervical range of motion(C1, C2)

Learning Objectives

To analyze clinical and radiological differences between mild and moderate to severe disc degeneration groups after cervical arthroplasty as determined by preoperative MRI-based disc grading.

References

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