Clinical and Radiological Outcomes 2 Years after Total Cervical Disc Replacement with the Discocerv® Cervical Prosthesis
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Background: Though the technical success of anterior cervical interbody fusion (ACIF) for cervical disc disease is widely presented in literature, its possible consequences in young and active populations (low return to work, adjacent segment disease) led to the development of new techniques meant to preserve motion. Several cervical prostheses are proposed nowadays but the evaluation of their safety and effectiveness is still ongoing.

Purpose: To assess the safety of use and to evaluate the clinical and functional outcome in patients operated with Discocerv® semi-constrained cervical mobile prosthesis at 2 years follow-up.

Study design/setting: Prospective observational study.

Patient and sample & methods: 48 consecutive patients (18m/30w: mean age 47±7 yrs [33-65]) who underwent total cervical disc replacement with Discocerv for degenerative disc diseases were enrolled in the study. 32 patients had a minimum follow-up of 2 years, clinical and radiological data being available for this group with an average follow-up of 32.6 [24-51] months.

Outcome measures: Clinical criteria: complications rate, pre- and post-operative VAS (1-100) self-reported cervical and radicular pain, NDI (1-50 scale), symptoms evolution (ODOM score), return to work rate, patient satisfaction. Radiographic criteria: flexion-extension mobility of the treated and adjacent levels, cervical (C1C7) and local lordosis.

Results: Surgery duration was 66±17 min and there were no per-operative complications. After surgery, 79% of the active population returned to work within 3 months and all but 2 patients (invalid) resumed their work within the first year. The ODOM score showed 84% excellent and 16% good results at 24 months, with 87.5% of patients satisfied with the results so far. Mean cervical and radicular VAS decreased from 65 [4-97] and 65 [2-100] pre-operatively to 15[0-79] and 12[0-74] at 24 months. Similarly, the mean NDI score decreased from 26/50 before surgery to 11/50 in early exams and then to 7/50 at 24 months. Besides two cases of complications, two other patients underwent revision surgery, unrelated to the arthroplasty, and a third patient received an additional prosthesis (on the level subjacent to the treated one).

Quantitative radiographic analysis showed satisfactory restoration of cervical mobility (treated levels) in 94% of cases, with mean flexion-extension ranges of 8.6±4° (4-19°) at 24 months follow-up. The adjacent level mobility was found within normal ranges at 24 months after surgery (13.7 ± 6.0°). Though local lordosis was postoperatively stable, values of C1C7 lordosis marked a progressive but significant postoperative increase (57±8°at 24 months versus 48±11° before surgery) significant of sagittal re-alignment.

Conclusions: Two years after TDR with Discocerv® prosthesis, clinical and radiological findings show good symptoms relief and satisfaction levels, associated with a low rate of complications, preserved mobility in 94% of cases and normal sagittal alignment.