Background context: Given the possible complications of anterior cervical interbody fusion in young and active populations, motion preserving techniques are developing with various materials and designs for cervical mobile disc prostheses. As clinical trials investigating these prostheses are still running, a mid and long term quantitative analysis of symptoms relief, sagittal alignment and ranges of motion is required.

Purpose: To evaluate the intermediate clinical and functional outcome in patients operated with Discocerv® semi-constrained cervical mobile prosthesis.

Study design/setting: Prospective observational study

PATIENT SAMPLE: 35 consecutive patients with single-level arthroplasty were enrolled in the study. 20 patients (14m/6w: mean age 42.5 ± 7 yrs [28-53]) had follow-up superior to 24 months, clinical and radiological data being available for this group with an average follow-up of 27.3 [24-35] months.

Outcome measures: Clinical evaluation was based on following criteria: complications rate, pre- and post-operative VAS (1-100) self-reported cervical and radicular pain, Neck Disability Index (1-50 scale), symptoms evolution (ODOM score) and return to work rate. Radiographic evaluation provided flexion-extension mobility of the treated and adjacent levels, cervical (C1C7) and local lordosis.

Methods: All patients underwent single-level cervical arthroplasty with Discocerv for degenerative disc diseases.

Results: Surgery duration was 57±20 min, corresponding to an average blood loss of 65.8 ml; there was one case of per-operative minor vascular complication. In the active population, 75% of patients resumed work within 6 months after surgery and all but 2 patients (invalid) resumed their work within the first year. At 24 months FU, the ODOM score showed 70 % excellent and 30 % good results and 90% of patients were fully satisfied with their treatment. Mean cervical and radicular VAS decreased from 61 [10-95] and 65 [12-96] pre-operatively to 16[0-65] and 11[0-70] at last follow-up. Values of neck Disability Index decreased from 23/50 before surgery to 12/50 in early postoperative exams and to 8/50 at FU.

Quantitative radiographic analysis showed preservation of cervical mobility at the operated levels with mean flexion-extension ranges of 6.7±2° (4-10°) at 24 months follow-up, except for 3 patients for whom ranges of motion were inferior to 3°. The adjacent level mobility was found within normal ranges and stable post-operatively: i.e. 14.1 ± 4° in early exams (3-6 months) and 14.4 ± 3° at FU(24 months). Five patients presented an abnormal sagittal alignment before surgery that was restored afterwards. Local lordosis was stable postoperatively and C1C7 lordosis marked a progressive increase from 45±10° before surgery to 49±9°at last follow-up.

Conclusions: The two years clinical and radiological results in TDR with Discocerv® prosthesis highlight a satisfying level of symptoms relief and return to work, associated to preserved mobility and normal sagittal alignment.