Title: 5-year outcomes after a second-generation cervical spine arthroplasty

Background: "Second generation" cervical arthroplasties are non-articulated disc implants (deformable elastomeric core), they do not involve a mechanical interface with a specific friction pair. To our knowledge there is no analysis of published results at 5 years in this type of arthroplasty.
Research question: To determine the 5-year outcomes of the use of second-generation cervical arthroplasty in the treatment of patients with cervical discopathy with or without disc herniation, at our institution.

Design: A historical cohort of all patients undergoing elective cervical spine arthroplasty at our institution with the use of a second-generation cervical prosthesis (M6-C artificial cervical disc) was evaluated.

Methods: The inclusion criteria were patients with primary cervical surgery and a minimum follow-up of 5 years. Demographic, clinical and radiological data were analyzed.

Results: 37 patients. 59.5% men. Mean age 47.1 years (range 30 - 66). Median follow-up 75.1 months (range, 62.5 – 92.2). In 27 patients only one level was replaced and in 10 patients 2 levels were replaced. The most frequent levels replaced were C5-C6 in 17 patients and C6-C7 in 20 patients. Statistically significant improvement was found at the end of follow-up, in the index of cervical disability, cervical pain and radicular pain ($p < 0.001$). Regarding patient satisfaction, 89.1% of patients reported being satisfied or very satisfied. During follow-up, 3 patients required reintervention. Radiologically, 7 patients with adjacent syndrome were found, 2 were reoperated. Mean extension and flexion mobility at 5 years was 8.1 (SD 5.91).

Discussion: In the 5-year follow-up, second-generation cervical prostheses showed good results in our institution, with improvement in functional scales and pain. Likewise, a good result of satisfaction and conservation of their mobility. In our study, the percentage of adjacent syndrome was 18.9%, and the percentage of reintervention 8.1%.