

Motion preservation versus fusion: systematic review on neurological outcome for cervical degenerative myelopathy after anterior decompression surgery.

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Abstract

Introduction: Whereas it is well established that surgically treated patients with cervical degenerative myelopathy (CDM) improve irrespective of the anterior decompression technique used, no consensus exists on what technique is superior in terms of neurological recovery. A general concern exists that anterior cervical discectomy with arthroplasty (ACDA) leads to less favorable outcomes in CDM due to microtrauma caused by preserved mobility. It is remarkable that current literature mainly uses pain scores to assess clinical outcomes after anterior decompression surgery, especially as pain may not be the most relevant outcome for CDM.

Research question: To assess neurological outcomes in patients with isolated CDM treated with anterior decompression surgery, assessed by validated myelopathy scores.

Design: Systematic review.

Methods: Searches were carried out in 5 databases. Prospective studies were included when patients with isolated CDM were treated with anterior decompression surgery and a validated myelopathy outcome score was used.

Results: A total of 11 studies were included from the 16.032 identified studies. All studies used the (modified) Japanese Orthopedic Association outcome score ((m)JOA) and showed improvement for all techniques. The mean improvement in anterior cervical discectomy and fusion (ACDF) was 4.80 and 3.64 for mJOA and JOA, respectively. The JOA for ACDA showed a mean improvement of 5.51. The overall quality of the included articles was low to moderate.

Discussion: Neurological recovery after anterior decompression surgeries in patients with CDM is equal for all evaluated decompression techniques. The lack of high-quality research about neurological recovery in patients with myelopathy is remarkable. To further establish the long-term neurological recovery in CDM patients for anterior decompression techniques, future studies should have an adequate follow-up duration and use a validated myelopathy score as primary outcome measure.