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Title: The change of adjacent segment after cervical disc arthroplasty compared with anterior cervical discectomy and fusion: a meta-analysis of randomized controlled trials

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1 **The Change of Adjacent Segment after Cervical Disc Arthroplasty Compared**
2 **with Anterior Cervical Discectomy and Fusion: A Meta-analysis of Randomized**
3 **Controlled Trials**

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19 **Abstract**

20 **BACKGROUND CONTEXT:** Many meta-analyses have been performed to study the
21 efficacy of cervical disc arthroplasty (CDA) compared with anterior cervical
22 discectomy and fusion (ACDF); however, there are few data referring to adjacent
23 segment within these meta-analyses, or investigators are unable to arrive at the same
24 conclusion in the few meta-analyses about adjacent segment. With the increased
25 concerns surrounding adjacent segment degeneration (ASDeg) and adjacent segment
26 disease (ASDis) after anterior cervical surgery, it is necessary to perform a
27 comprehensive meta-analysis to analyze adjacent segment parameters.

28 **PURPOSE:** To perform a comprehensive meta-analysis to elaborate adjacent segment
29 motion, degeneration, disease, and reoperation of CDA compared with ACDF.

30 **STUDY DESIGN:** Meta-analysis of randomized controlled trials (RCTs).

31 **MATERIALS AND METHODS:** Pubmed, EMBASE, and Cochrane Library were
32 searched for RCTs comparing CDA and ACDF before May 2016. The analysis
33 parameters included: follow-up time, operative segments, adjacent segment motion,
34 ASDeg, ASDis and adjacent segment reoperation. The risk of bias scale was used to

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