

AB133. Determining the difference in clinical and radiological outcomes between expandable and non-expandable cages in the cervical fusion procedures: a systematic review and meta-analysis

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Background: The use of expandable cages in lumbar spine surgery is seen more frequently than in cervical cases, both a higher cost and a paucity in evidence surrounding their use may have contributed to this disparity.

Methods: A database search was carried out to identify the literature detailing outcomes from expandable and non-expandable cages in the cervical spine. These were screened using the preferred reporting items for systematic reviews and meta-analyses (PRISMA) protocol.

Results: Fifty-five studies were included. Fixed and random-effects models were used with a 95% confidence interval. The Freeman-Tukey double arcsine transformation was

utilised for proportion-based outcomes to allow for inclusion of studies with zero events. The mean subsidence was significantly greater for the non-expandable cages (2.63 mm; CI, 2.52–2.73 mm *vs.* 2.12 mm; CI, 1.90–2.34 mm; $P<0.001$). Mean change in segmental lordosis was significantly greater in expandable cages but change in cervical lordosis was greater in the non-expandable cages (segmental: 10.48°; CI, 10.34–10.62° *vs.* 2.01°; CI, 1.95–2.07°; $P<0.001$), (cervical: 3.12°; CI, 2.76–3.84° *vs.* 3.86°; CI, 3.77–3.96°; $P<0.001$). Improvement in neck pain was significantly greater in non-expandable cages (3.57; CI, 3.55–3.58 *vs.* 2.56; CI, 2.45–2.67; $P<0.001$). Change in JOA score was significantly higher in non-expandable cages (4.57; CI, 4.54–4.60 *vs.* 2.78; 2.57–3.00; $P<0.001$). No significant difference was found in the number of complications ($P=0.58$), reoperations ($P=0.28$) or fusion rate ($P=0.43$).

Conclusions: The use of expandable cages may carry improved radiological outcomes than that of non-expandable cages in the cervical spine, however as the clinical outcomes show little difference between the two, it remains unclear whether the heightened expense of using expandable cages is justified.

Keywords: Cervical; expandable cages; non-expandable cages; radiological outcomes; clinical outcomes

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