

Introduction

Surgeons are acutely aware of the risk of subsidence after lateral lumbar interbody fusion (LLIF), but the exact incidence across studies is not well described. This systematic review represents an effort to quantify the degree of subsidence and determine the rate of re-operation.

Methods

Following the Meta-analysis (and Systematic Review) Of Observational Studies in Epidemiology (MOOSE) Guidelines in the Enhancing the QUALity and Transparency Of health Research (EQUATOR) resources, a computer-aided search of MEDLINE (1946 – July 17, 2017) and Embase (1947 – July 17, 2017) identified all articles with key words related to subsidence after LLIF. Only articles with intervertebral heights both immediately postoperative and long-term follow up were included in this study. Reoperation rates were calculated

Results

Of the pooled 472 patients in all 5 publications, the disc height decreased 5.6% after 3 months, 6.0% after 6 months, 10.2% after 12 months, and 8.9% after 24 months (p<0.001). Subgroup analysis showed the intervertebral disc space at 12 month postoperatively decreased by 9.1% in the cage-only cohort without additional instrumentation versus 11.2% in the cohort with cage plus supplemental fixation (p<0.001). The overall rate of revision surgery was 3.6% (n=17). Of these six underwent re-operation due to subsidence with a 1.3% re-operation rate.

Conclusions

Overall the risk of re-operation of subsidence is very low despite its prevalence. In our analysis, supplemental fixation was associated with a greater degree of subsidence, contrary to expectation. The inconsistent reporting of subsidence in the literature limited the number of studies suitable for meta-analysis, but the negative effects of subsidence seem low.

Learning Objectives

- 1) Identify the time-dependent rate of subsidence after LLIF
- 2) Quote the incidence of reoperation for subsidence after LLIF
- 3) Discuss the affect of supplemental fixation in subsidence after LLIF
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