

Abstract #1418.docx

CAGE SUBSIDENCE AND CLINICAL OUTCOME IN ANTERIOR CERVICAL DISCECTOMY AND FUSION

Introduction/Aim

Anterior Cervical Discectomy and Fusion (ACDF) provides segmental stability and arthrodesis, making it an effective treatment in various spinal disorders. Although surgical risks are minimal, subsidence may have a detrimental impact on clinical outcome. Whether such a correlation exists, is controversial. By assessing the available literature, we aimed to solve this controversy.

Materials and Methods

A literature search was performed in PubMed, MEDLINE, Embase, Web of Science, COCHRANE and CENTRAL. Inclusion criteria: ≥ 20 patients, ADCF with cage, subsidence assessed, primary data and paper in English/Dutch. Risk of bias was assessed using an adjusted Cochrane checklist. In this preliminary analysis only studies with a low or very low risk of bias score were assessed.

Results:

We analysed 37 studies. The use of PEEK or titanium cages did not influence the percentage of patients who experienced subsidence (15.2% vs 13.6%; $p=0.292$). However, results were superior to cage-plate constructions (CPC) (28.2%; $p<0.001$). Mean subsidence (in millimetres) was 1.79 using PEEK cages, 2.03 using titanium cages, 2.74 using CPC and 1.16 in the control group without cage (all differences significant, $p<0.001$). Relative improvement of clinical outcome score (VAS, JOA, NDI, SF-36) was 62.2% using PEEK cages and 33.0% using titanium cages ($p<0.001$). However, patients receiving CPC (74.6%) and the control group (67.6%) both had superior clinical outcome scores as compared to both cages ($p<0.001$). The extent of subsidence was not significantly correlated with clinical outcome scores.

Discussion:

Interestingly, we detected a lack of investigators reporting a multitude of outcome parameters, effectively making a multivariate analysis of all clinical outcome predictors impossible. The lack of correlation between subsidence and clinical outcome scores can presumably be explained by this shortage. Studies published in 2014 and studies with high risk of bias score have not yet been included in this analysis. We envision doing this in the near future.

Conclusion:

We have found a very distinct difference between clinical outcome scores when using either PEEK or titanium cages. Our results warrant further clinical investigation into the benefits of different cage types.