INPLASY PROTOCOL

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None declared.

Comparison of the efficacy of unilateral biportal endoscopic lumbar fusion and microscopic transforaminal lumbar fusion in the treatment of lumbar degenerative diseases: A Systematic Review and Meta-Analysis

Li, Y[1]; Lin, SS[2]; Zhou, SG[3].

Review question / Objective: **This study systematically evaluated the clinical efficacy and prognosis of unilateral biportal endoscopic lumbar interbody fusion versus microscopic transforaminal lumbar fusion in patients with lumbar degenerative diseases complicated with instability by searching case-control trials.**
Condition being studied: **Lumbar degenerative disease refers to the physiological and pathological process of natural aging and degeneration of the lumbar spine. Lumbar spine is the pivot of human trunk movement. Severe degenerative diseases of lumbar spine can cause back and leg pain and even nerve damage, affecting working ability and quality of life. Lumbar degenerative diseases include intervertebral disc disease, cartilaginous endplate disease, vertebral body disease, lumbar facet joint disease, ligament disease, spinal stenosis and so on. The main symptoms are lower back pain and decreased lumbar support function, mainly manifested as lower limb pain and numbness, intermittent claudication, and in severe cases, urinary and urinary dysfunction and sexual dysfunction.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 09 December 2022 and was last updated on 09 December 2022 (registration number INPLASY2022120037).

INTRODUCTION

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METHODS

Participant or population: Lumbar degenerative disease refers to the physiological and pathological process of natural aging anddegeneration of the lumbar spine. Lumbar spine is the pivot of human trunk movement. Severe degenerativediseases of lumbar spine can cause back and leg pain and even nerve damage, affecting working ability andquality of life. Lumbar degenerative diseases include intervertebral disc disease, cartilaginous endplatedisease, vertebral body disease, lumbar facet joint disease, ligament disease, spinal stenosis and so on. Themain symptoms are lower back pain and decreased lumbar support function, mainly manifested as lowerlimb pain and numbness, intermittent claudication, and in severe cases, urinary and urinary dysfunction andsexual dysfunction.

Intervention: Unilateral biportal endoscopic lumbar interbody fusion.

Comparator: Microscopic transforaminal lumbar fusion.

Study designs to be included: CCT.

Eligibility criteria: Inclusion criteria: (I) Case-control studies (CCT) of ULIF and MIS-TLIF or P/TLIF in the treatment of lumbar degenerative diseases with a follow-up time of not less than 3 months; (2) The age of the subjects is over 18; (3) Preoperative imaging diagnosis of single or two-level lumbar degenerative changes; (4) Lumbar spondylolisthesis does not exceed II degree; (5) Include at least 3 of the evaluation indicators in this study.Exclusion criteria: (1) Observational studies lacking a control group; (II) Reviews, case reports or meta-analyses; (3) The required data cannot be extracted or the data is obviously wrong; (4) Repeated studies.

Information sources: PubMed, Web of Science, embase, Cochrane Library, CNKI, Wanfang data, VIP and CBM.

Main outcome(s): Postoperative lumbar and leg VAS (Visual analog scale) scores, postoperative ODI (Oswestry Disability Index) score, rate of good postoperative MacNab, the last follow-up imaging fusion rate, intraoperative and postoperative complications.

Additional outcome(s): Operation duration, intraoperative blood loss, postoperative drainage volume, length of hospital stay.

Data management: Two researchers independently conducted preliminary screening of the retrieved literature to exclude duplicate literature, then excluded part of the literature by reading the title and abstract of the article, and obtained the final included literature by reading the full text combined with the inclusion and exclusion criteria. When there was no opinion, the third researcher made the final ruling.

Quality assessment / Risk of bias analysis: Newcastle-Ottawa scale (NOS) was used to evaluate the quality of the included case-control studies. The main evaluation contents included population selection, comparability between groups and exposure. The higher the score, the better the quality, with a full score of 9.

Strategy of data synthesis: Meta-analysis was performed using RevMan 5.4.1 software and Stata17 software provided by the Cochrane Library. For continuous variables, Mean Difference MD (Mean Difference) was used, and for binary variables, Odds Ratio OR (Odds Ratio) was used. confidence interval (CI) was set as 95% (P). 0.05 indicates that the difference is statistically significant. When the heterogeneity of the included literatures was small (P 0.1, I^2?50%), the fixed effect model was used to combine the results. When the heterogeneity is high (P 0.1, I^2 50%), firstly, sensitivity analysis was conducted, and references were excluded one by one. Subgroup analysis was conducted if necessary to find out the source of heterogeneity as far as possible. If the heterogeneity could not be clearly defined and reduced, and the combined effect size was stable, the results were combined using random effects model and Harbord test was used for publication offset.

Subgroup analysis: Subgroup analysis was performed according to the age of publication and the country in which the surgery was performed.

Sensitivity analysis: Sensitivity analysis was performed using stata17 software.

Country(ies) involved: China.

Keywords: unilateral biportal endoscopic, lumbar interbody fusion.

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