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A Radiological Comparison of Anterior Fusion Rates in Anterior Lumbar Interbody Fusion

Abstract

Aim To compare anterior fusion in standalone anterior lumbar interbody fusion (ALIF) using cage and screw constructs and anterior cage-alone constructs with posterior pedicle screw supplementation but without posterior fusion.

Methods Eighty-five patients underwent single- or two-level ALIF procedure for degenerative disk disease or lytic spondylolisthesis (SPL). Posterior instrumentation was performed without posterior fusion in all cases of lytic SPL and when the anterior cage used did not have anterior screw through cage fixation.

Results Seventy (82%) patients had adequate radiological follow-up at a mean of 19 months. Forty patients had anterior surgery alone (24 single level and 16 two levels) and 30 had front-back surgery (15 single level and 15 two levels). Anterior locked pseudarthrosis was only seen in the anterior surgery-alone group when using the STALIF cage (Surgicraft, Worcestershire, UK) (37 patients). This occurred in five of the single-level surgeries (5/22) and nine of the two-level surgeries (9/15). Fusion was achieved in 100% of the front-back group and only 65% (26/40) of the anterior surgery-alone group.

Conclusion Posterior pedicle screw supplementation without posterolateral fusion improves the fusion rate of ALIF when using anterior cage and screw constructs. We would recommend supplementary posterior fixation especially in cases where more than one level is being operated.

以放射學比較前路腰椎椎間融合術的前路融合率

目的 比較前路融合在使用護架和螺釘結構的獨立前路腰椎椎間融合術（ALIF）和使用後路椎弓根螺釘作補充的前路獨立護架結構，但沒有後路融合術。

方法 85 名病人接受了因椎間盤退變性疾病或解離性腰椎前位滑脫症（SPL）的單節段或雙節段前路腰椎椎間融合術。所有解離性腰椎前位滑脫症的患者都進行了後路內固定，但沒有進行後路融合，和當使用前護架但沒有透過前路螺釘固定護架。

結果 平均 19 個月中，有 75 個病例（82%）有足夠的放射學跟進。40 個病例只進行了前路手術（24 個單節段和 16 個雙節段）和 30 個病例進行了前後路手術（15 個單節段和 15 個雙節段）。前鎖定假關節只出現在使用 STALIF 護架（Surgicraft, Worcestershire, UK）的單純前路手術組別（37 個病例）。這發生在 5 個單節段的手術（5/22）和 9 個雙節段的手術中（9/15）。在前後路手術組別達到了 100% 的融合率和在單純前路手術組只有 65%（26/40）的融合率。

結論 以後路椎弓根螺釘作補充但沒有後外側融合可改善使用前護架和螺釘結構的前路腰椎椎間融合術的融合率。尤其是在多於一個節段需要進行手術的情況下，我們會建議使用補充後路內固定。