The anticipated fusion rate is one of several factors that may guide surgical decision making. Anterior cervical decompression and fusion results in high fusion rates. The results of Fraser and Härtl study show that regardless of the number of levels fused, the use of an anterior cervical plate system significantly increases the fusion rate. For two-disc-level disease, there was no significant difference between ACD with a plate system or corpectomy with a plate system. For three-disc-level disease, however, the evidence suggests that corpectomy with plate placement is associated with higher fusion rates than discectomy with plate placement [1].

The fusion rate in spinal surgery may vary in relation to the technique, and it remains unknown which surgical technique provides the best fusion rate and surgical outcomes. Lee et al., aimed to compare radiological and surgical results between three surgical techniques used for lumbar interbody fusión.

Seventy-seven patients diagnosed with degenerative spinal stenosis including spondylolytic spondylolisthesis. Patients were divided into three groups according to the surgical technique: anterior lumbar inter-body fusion (ALIF, n = 26), transforaminal lumbar inter-body fusion (TLIF, n = 21), and posterior lumbar inter-body fusion (PLIF, n = 30). Various radiological parameters were measured including fusion rates.

RESULTS:

Significant changes after surgery were observed in the ALIF group for the percentage of vertebral body slippage, anterior disc height, posterior disc height, segmental, and segmental ROM. The fusion rate on CT scan at the final follow-up was 69.2% in the ALIF, 72.7% in the TLIF, and 64.3 % in the PLIF. The cage subsidence rate 2 years after surgery was 15.4% in the ALIF, 38.1% in the TLIF, and 10% in the PLIF.

CONCLUSIONS:

ALIF was associated with better restoration of segmental lordosis. The fusion rate on CT scan and with segmental ROM did not differ between the three groups. TLIF was associated with a better post op VAS. PLIF showed the lowest cage subsidence rate. Therefore, it looks difficult to tell which surgical technique is better between the three groups as well as all the surgical procedures being equivocal in terms of fusion rate and outcomes [2].

1)
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2)
Lee N, Kim KN, Yi S, Ha Y, Shin DA, Yoon DH, Kim KS. Comparison of outcomes of anterior-, posterior- and transforaminal lumbar interbody fusion surgery at a single lumbar level with degenerative spinal disease. World Neurosurg. 2017 Feb 8. pii: S1878-8750(17)30140-7. doi: 10.1016/j.wneu.2017.01.114. [Epub ahead of print] PubMed PMID: 28189865.