Do Lordotic Cages Provide Greater Segmental Sagittal Contour Change in Lateral Lumbar Interbody Fusion (LLIF)

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Summary: LLIF was performed at 64 levels in 43 patients. Lordotic cages were used in 33 and non-lordotic cages in 31. Radiographic segmental sagittal contour was measured pre- and post-op. Lordotic cages produced significant increase in segmental lordosis, while non-lordotic cages did not.

Introduction: Lumbar interbody fusion has traditionally been performed via anterior (ALIF), posterior (PLIF or TLIF) or combined approaches. Lateral lumbar Interbody Fusion (LLIF) is a new minimally-invasive approach. Lordotic and non-lordotic cages are available. It is not known whether lordotic cages provide measurable sagittal contour change.

Methods: This is a comparative radiographic analysis of consecutive LLIF procedures performed with use of lordotic vs. non-lordotic interbody cages. 43 patients underwent LLIF at 64 levels. Average age was 58 yrs (r=30-83). Ten degree lordotic PEEK cages were used at 33 lumbar interbody levels, and non-lordotic cages were used at 31 levels. The following were measured on x-rays: segmental lordosis at operative level; segmental lordosis at level above and below; anterior and posterior disc heights; and overall lumbar (L1-S1) lordosis. Measurement changes for both groups were compared using paired t-test analysis.

Results: Lordotic cages resulted in a significant increase in lordosis at operative levels (p=0.03), whereas non-lordotic cages did not (p=0.24). Neither cage group resulted in significant change in supra- and subjacent level lordosis (p>0.05 for both groups). Anterior and posterior disk heights were significantly increased in both groups (p< 0.01 for both groups). Neither cage group showed significant change in overall lumbar lordosis (lordotic p=0.60 vs. non-lordotic p=0.19).

Conclusion: Lordotic cages provided significant increase in segmental lordosis at operative levels compared to non-lordotic cages, although overall lordosis remained unchanged. Anterior and posterior disk heights were significantly increased by both cages, providing basis for indirect spinal decompression.