Comparison of Paraspinal Muscle Degeneration and Clinical Outcome Between PLIF with Supplement Interspinous Process Fixation and Conventional Open TLIF in Low-grade Lumbar Spondylolisthesis

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Background: Interspinous process device are being developed to aid in the stabilization of the spine. They are being evaluated as alternatives to pedicle screw and rod constructs in combination with interbody fusion.

Objective: The authors present the clinical results obtained in patients who underwent interspinous process device (IPD) implantation with posterior lumbar interbody fusion (PLIF) for lumbar spondylolisthesis. The purpose of this study compares the paraspinal muscle degeneration and clinical outcome of IPD with PLIF and conventional open transforaminal lumbar interbody fusion (TLIF) in the treatment of low-grade lumbar spondylolisthesis

Methods: 20 patients underwent partial laminecotmy, PLIF (TM cage) and subsequent IPD (Romeo_2 PAD, or stenofix) implantation (IPD group). 20 patients underwent partial laminectomy, conventional open transforaminal lumbar interbody fusion (TLIF group). Medical records of these patients were retrospectively reviewed to collect relevant data such as blood loss, operative time, length of hospital stay, VAS, SF-32 and ODI score. Radiographs and clinical outcome were evaluated 6 weeks and 12 months after surgery. CT and MRI were collected 12 months after surgery. Measure muscle-fat-index (MFI) change of the paraspinal muscles in T1 MRI

Results: The medical reviews revealed lesser blood loss, lesser operative time and lesser length of hospital stay in IPD group. Better in decreasing ODI and SF-32 was also noted in IPD group. The result of CT revealed that almost the same fusion rate in both group. The result of MRI revealed that lesser MFI change in IPD group.

Conclusion: The interspinous process device appears to achieve adequate posterior fixation and facilitate lumbar fusion in selected patients and decrease soft tissue damage. However, further study is mandatory for novel anatomic and radiological scoring system to identify patients suitable for this treatment modality and prevent postoperative complications.