Lateral trans-psoas lumbar interbody fusion without intraoperative neuromonitoring: a single center retrospective study of 170 surgeries

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Introduction
Lateral lumbar interbody fusion (LLIF) is frequently used for anterior column stabilization with or without dorsal instrumentation. Although the anatomy is quiet clear, many authors report intraoperative neuromonitoring (IONM) of the lumbar plexus nerves to be mandatory for this approach.
Since our experience is different and IONM is an expensive add-on, which is sometimes limited in its resources, the objective of this study was to analyze the outcome of our large cohort of patients who underwent LLIF without IONM.

Methods
We report on 170 patients enrolled from 2010 to 2016 who underwent LLIF after dorsal instrumentation due to degenerative spine disease. LLIF-related complication, fusion, and reoperation rate as well as clinical outcome measures were evaluated.

Results
Mean follow-up was 15.7 ± 12 months. For 90.0% of patients, cage implantation by LLIF was a first retroperitoneal surgery. A median of 2 cages (range 1 to 5) were implanted per surgery, most commonly in L2/3 and L3/4. Mean length of surgery was 92.0 ± 34.6 min; blood loss was 62.3 ± 56.7 ml. The day after surgery, 3.3% of patients showed a new motor weakness, 1.2% new leg pain, and 2% a new sensory deficit due to LLIF surgery. Three months after surgery, 0.9% of patients still showed a surgery-related motor weakness, 0% new leg pain, and 1.0% a persistent sensory deficit due to LLIF surgery. There were no cases of surgery-related hematoma, vascular injury, CSF leak, or any other visceral injury.

Table 1: The table shows general characteristics of investigated cohort. Number of patients, operated levels, mean blood loss and surgical time.

Conclusion
In our opinion, supported by these data, the complication rates of this cohort are comparable if not superior to previously reported cohorts. IONM therefore appear not to be mandatory for LLIF procedures. However, these finding should be validated by prospective, randomized study.