

BACKGROUND Patients with severe axial low back pain represent a challenge to spine surgeons as the surgical indications are not clear. The primary surgical treatment option consists of instrumented interbody fusion. Previous studies have found high rates of patient nonsatisfaction after instrumented lumbar fusion. Therefore, there is a need to identify patients at risk of an unsatisfactory outcome following this procedure. **PURPOSE OF THE STUDY** To assess preoperative clinical risk factors for patient nonsatisfaction after lumbar interbody fusion **MATERIALS AND METHODS** This was a dual-center study over an eight-year period on patients without spondylolisthesis undergoing decompression with single-level fusion surgery with either posterior- or transforaminal lumbar interbody fusion. We analyzed prospectively collected pre- and postoperative data from the national Danish surgical spine database (DaneSpine). The primary outcome was patient-reported nonsatisfaction with treatment at two-year follow-up. We assessed the association between nonsatisfaction and preoperative variables such as pain intensity, disability (Oswestry disability index (ODI)), duration of back pain, previous discectomy, and expectations regarding return to work after surgery. Additional patient demographics and pain profiles were also assessed. **RESULTS** The cohort included 474 patients of which 86 (18%) reported treatment nonsatisfaction. Preoperative data from the nonsatisfaction group demonstrated higher VAS scores for back pain (75 ± 19 vs. 68 ± 21 , $p=0.006$) and leg pain (65.3 ± 25 vs. 58 ± 28 , $p=0.004$). Treatment nonsatisfaction was 13% for patients with preoperative VAS score 0-40, 15% for VAS 41-79 and 25% for VAS 80-100. There was no significant difference between the groups in terms of preoperative ODI score, age, body mass index, duration of back pain, walking distance or rate of preoperative sick leave ($p>0.05$). Also, there was no significant difference in terms of patient preoperative employment status or patient expectations on return to work after surgery ($p>0.05$). **CONCLUSIONS** Higher preoperative back and leg pain were risk factors for nonsatisfaction after lumbar interbody fusion. There was a substantial drop-off in satisfaction rate for patients who reported severe preoperative pain (VAS 80-100). Expectations in this patient group should be discussed preoperatively.