



Introduction

Clinical practice in post-operative bracing after posterior lumbar spine fusion (PLF) is inconsistent between providers. Direct evidence for its efficacy is limited. We sought to elucidate the effect of bracing on short-term outcomes related to safety, quality of care and direct costs.

Methods

Retrospective cohort analyses of consecutive patients undergoing single-level PLF with or without bracing (2013-2017) was undertaken (n=884). Patient demographics and comorbidities were analyzed. Tests of independence (Chi-square, Fisher's exact test, Cochran-Mantel-Haenszel) Mann-Whitney-Wilcoxon tests and logistic regressions were used to assess differences in length of stay (LOS), discharge disposition/need for post-acute care, quality-adjusted life year (QALY), surgical-site-infection (SSI), hospital cost, total cost, readmission within 30 days, and ER visits within 30 days.

Results

Amongst the study population, 837 patients were braced and 47 were not braced. There was a difference in graft type (P=0.0004) where the braced patients more commonly had all graft types and the unbraced patients more commonly had no graft type. There was also a difference in ASA grade (P=0.021) where the ASA 2 was more common in the braced group and ASA 3 was more common in the unbraced group. There was no difference in comorbidities (P=0.021-1.00) such as obesity (P=1.000), smoking (P=0.559), chronic obstructive pulmonary disease (P=1.000), hypertension (P=1.000), coronary artery disease (P=1.000), congestive heart failure (P=1.000), and problem list number (P=0.251). The braced group incurred a significantly higher direct cost (mean increase of 35.33%, P<0.0001) compared to the unbraced cohort (bracing cost excluded). No difference was seen between the two groups in LOS (P=0.747), discharge disposition (P=0.605), readmission

Conclusions

Bracing following single-level posterior lumbar fixation does not alter short-term post-operative course or reduce the risk for early adverse events. Furthermore, patients braced subsequent to PLF incurred higher direct costs. Short term data suggest that removal of bracing from the post-operative regimen for PLF will not result in increased adverse outcomes but will reduce cost. Long-term analysis of risk and fusion rates is necessary prior to elimination of post-operative bracing from care algorithms.

References

1. Johnsson R, Strömquist B, Axelsson P, Selvik G. Influence of spinal immobilization on consolidation of posterolateral lumbosacral fusion: A roentgen stereophotogrammetric and radiographic analysis. *Spine (Phila Pa 1976)*. 1992;17(1):16-21. doi:10.1097/00007632-199201000-00003.
2. Soliman HAG, Barchi S, Parent S, Maurais G, Jodoin A, Mac-Thiong JM. Early impact of postoperative bracing on pain and quality of life after posterior instrumented fusion for lumbar degenerative conditions: A randomized trial. *Spine (Phila Pa 1976)*. 2018;43(3):155-160. doi:10.1097/BRS.0000000000002292.
3. Connolly PJ, Grob D. Bracing of patients after fusion for degenerative problems of the lumbar spine - Yes or no? *Spine (Phila Pa 1976)*. 1998;23(12):1426-1428. doi:10.1097/00007632-199806150-00024.
4. Porter ME. What Is Value in Health Care? *N Engl J Med*. 2010;363(26):2477-2481. doi:10.1056/NEJMp1011024.

Learning Objectives

