Increased intra-operative blood loss, durotomy, and complications with longer intra-operative time spent during spinal fusion regardless of number of vertebral levels involved

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**BACKGROUND**

Extensive variations in the surgical approach and operative techniques utilized for spinal fusion between surgeons and institutions results in a wide spectrum of operative times. However, there is a lack of consensus within the literature about the clinical effect of these differences on surgical outcomes or complication rates.

**RESULTS**

A total of 475 patients were identified. After separating patients based on intraoperative surgery time, short and prolonged surgical times included 171 and 304 patients, respectively (1.815 hrs vs 5.0148hrs, respectively, p=0.6842). Subgroup analysis yielded no statistical significance with regard to the number of levels involved in the fusion (6.002 levels vs 5.988 levels, respectively, p=0.3193). Intra-operative blood loss and incidence of durotomy were among the statistically significant peri-operative factors associated with differences in surgical timing. (Blood loss: 534.26ml vs 605.75ml, respectively, p<0.001; Durotomy: 10 vs 41, respectively, p=0.019 and 10 vs 41, respectively, p=0.019). No statistical significance was evident with regard to rate of surgical site infections between either cohort (N=7 vs 10, p=0.6625).

**MATERIALS AND METHODS**

An IRB approved database was established which comprehensively and prospectively examined patients undergoing spine fusion surgery at any spinal segment. Patients with a surgical duration of 3 hours or less were considered to have a short intraoperative time while those whose surgery exceeded 3 hours were classified as having a prolonged intraoperative time under anesthesia.

**CONCLUSIONS**

While it is intuitive that differences in operative approach and technique lead to different surgical outcomes, the influencing factors remain less transparent. For our study, longer durations under anesthesia were associated with increased intra-operative complications, durotomy, and blood loss, which were observed regardless of the number of levels fused. There did not appear to be a difference in the incidence of surgical site infections.