

Introduction

Minimally invasive transforaminal lumbar interbody fusion (MIS TLIF) has been celebrated as a technique for decreasing patient’s post-operative pain, decreased blood loss in the OR, and shorter hospital stays. It has come under criticism recently due to the perception that the radiation exposure to the patient, surgeon, and operating room staff are increased in comparison to its open counterpart. This study assesses radiation exposure between the fully navigated versus conventional fluoroscopic MIS TLIF techniques using the C-arm and K-wires

Methods

Retrospective chart review was completed for the senior author’s 1 and 2 level MIS TLIFs performed consecutively from 2004-2014. The surgeries from 2004-2006 were performed with fluoroscopy, and the surgeries from 2006-2014, were performed only using neuronavigation. Radiation exposure was recorded at the end of each case by the radiology department.

Results

Over this time period 391 single level and 200, 2 level navigated MIS TLIFs were performed. Over the same period 71 single level and 26, 2 level MIS TLIFs were performed using conventional fluoroscopy. The total radiation dosing per procedure was 86.4 mGy for one level and 89.2 mGy for 2 level neuronavigated TLIF. For conventional fluoroscopy, there was 121.8 mGy for single level and 182.1 mGy for 2 level TLIF. Both single and 2 level MIS TLIFs met statistical differences in radiation dosing to the patient.

Conclusions

Fully navigated MIS TLIF provides a viable alternative to the conventional MIS TLIF with decreased radiation exposure to the OR staff, surgeon, and patient.

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