

AB039. 154. Retrospective cohort study: transforaminal nerve block injection- the association between body mass index and the depth of epidural space, radiation dose exposure and fluoroscopic screening time

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Background: The primary objective of this study was to examine the association between body mass index (BMI) and the depth of tissue overlying the epidural space. Secondary objectives examined the association between BMI and (I) radiation dose exposure; and (II) fluoroscopic screening time during transforaminal nerve block (TFNB) injections.

Methods: Retrospective cohort study including patients aged ≥ 16 years who underwent unilateral single level TFNB in a single centre over a 28 months period, by a single spinal orthopaedic surgeon. Demographic data, BMI (kg/m^2), fluoroscopic screening time (seconds) and radiation dose exposure [centi-Gray per square centimeter squared ($\text{cGy}\cdot\text{cm}^2$)] were recorded. Exposure of interest: BMI, Primary outcome: Depth of epidural space, Secondary outcomes: (I) radiation dose exposure; (II) fluoroscopic screening time. Descriptive statistics for study participants'

demographics are presented. Spearman's rank (r) coefficient and linear regression analysis was performed examining the association between BMI, and the outcome measures.

Results: A total of 362 patients met inclusion criteria; n=45 patients were excluded due to incomplete data, final analysis included 317 patients. Mean age was 62.6 years (IQR, 53–74 years). The male:female ratio was 120:197. Mean BMI was $26.9 \text{ kg}/\text{m}^2$ (IQR, $24.4\text{--}28.9 \text{ kg}/\text{m}^2$). Following adjustment for age, gender and spinal comorbidities there is a statistically significant association between BMI and the depth of tissue overlying the epidural space (adjusted coefficient =2.41; 95% CI, 2.14–2.68; $P<0.001$). We also found a significant association between BMI and both secondary outcomes; radiation dose exposure (adjusted coefficient 1.45; 95% CI, 0.84–2.06; $P<0.001$) and fluoroscopic screening time (adjusted coefficient =0.11; 95% CI, 0.02–0.20; $P=0.02$).

Conclusions: This retrospective cohort study demonstrates the association between increasing BMI and increased depth of the epidural space. In addition, associations between increasing BMI, radiation dose exposure and fluoroscopy screening time were identified. BMI represents a potentially modifiable risk factor with a view to decreasing patient exposure to medical ionised radiation.

Keywords: Transforaminal nerve block (TFNB); body mass index (BMI); radiation dose exposure; fluoroscopic screening time; epidural space depth

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