

AB068. SOH21AS131. A retrospective analysis of radiation exposure to patients during orthopaedic fluoroscopic nerve block procedures: can we lessen the dose?

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Background: This study investigates radiation doses received by patients undergoing transforaminal (TFNB), hip, and sacroiliac joint (SIJ) nerve blocks by a single consultant orthopaedic surgeon across two separate settings: Theatre *vs.* Cath-lab. The fluoroscopic screening times (FST) patients were exposed to during their procedure were gathered to assess the relationship between FST and radiation dose received.

Methods: Data was gathered retrospectively for a 30-month period from theatre and cath-lab records in a single hospital. Demographics gathered for each patient included gender, age, spinal level for TFNB procedures, radiation dose measured in Gray per centimetre squared (Gy/cm^2), and FST (seconds). Exclusion criteria included multiple or bilateral spinal levels. All TFNB, hip and SI joint data recorded were unilateral procedures. Independent sample t-tests were used to analyse the data.

Results: A total of 442 patients met inclusion criteria. The mean radiation dose received during the TFNB for the theatre group ($0.329 \text{ Gy}/\text{cm}^2$) was significantly higher than the cath-lab ($0.260 \text{ Gy}/\text{cm}^2$) ($P=0.002$). This statistically significant observation of higher radiation doses in theatre versus the cath-lab was also seen for the hip ($P=0.001$) and

SIJ ($P=0.013$) procedures, respectively. Pearson correlational analysis showed a moderately positive and statistically significant relationship between FST and radiation dose received by each patient ($r=0.630$, $P=0.001$).

Conclusions: This retrospective cohort study demonstrated that patients undergoing TFNB, HIP and SIJ procedures are exposed to higher radiation doses in theatre than the Cath-lab. Longer FSTs were associated with higher radiation exposure. Location of procedure may represent a significant modifiable risk factor for ionising radiation exposure to both patients and clinicians.

Keywords: Cath-lab; fluoroscopic screening time; radiation dose exposure; theatre; transforaminal nerve block (TFNB)

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Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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