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Factors affecting intra-operative radiation in fixation of proximal femur fractures

Amr Elbahi
Kettering General Hospital, UK

Abstract

We aimed to investigate factors that have an association with increased radiation exposure in fixation of proximal femur fractures.

We assessed 369 neck of femur fractures between April 2019 and April 2020 in one district general hospital. Fractures were classified as extracapsular or intracapsular and into subtypes as per AO classification. Data was collected on type of fractures, implants used, level of surgeon, duration of surgery and dose-area-product (DAP - cGy.cm2). Types of fractures were subclassified as complex (multi-fragmentary, subtrochanteric and reverse oblique) or simple. Quality of reduction and metalwork placement were analysed in correlation to the DAP.

184 Patients with fractures fixed with DHS, short and long PFNA, and cannulated screws were included in. There was a significant association of higher DAP with fracture subtype (P=0.001), fracture complexity (P<0.001), if anadditional implant was used (P=0.001), if fixation was satisfactory (P=0.002) and the operative time (P<0.001). DAP was higher in PFNA than DHS and greatest in Long PFNA. There was some evidence of association between the level of the surgeon and DAP, although this was not statistically significant (P=0.069) and remained not significant after adjusting for the variables (fracture complexity, fixation or implant used) (p=0.32).

Increased radiation in proximal femur fractures is seen in fixation of complex fractures, certain subtypes, the type of implant used and if an additional implant was required. Seniority of surgeon did not result in less radiation exposure even when adjusting for the other factors, which in contrast to the previous literature.

Recent Publications (minimum 5)

1. Alshahwani A A, Boktor J, Elbahi A, et al. (April 12, 2021) A Systematic Review of the Value of a Bladder Scan in Cauda Equina Syndrome Diagnosis. Cureus 13(4): e14441. doi:10.7759/cureus.14441

Biography

Amr Elbahi has completed his MBBCH from faculty of Medicine, Cairo University postgraduate qualification (MRCS) from Royal College of Surgeons in London - UK. I am currently working as a speciality registrar in a rotational post in Trauma and Orthopaedic departments in EastMidlands Hospitals.

amroelbahi@gmail.com