

6th World Congress on Spine and Spinal Disorders

December 06-07, 2021 | Dubai, UAE

EOS Low-Dose Radiation Imaging for Spinal Deformity: The new gold standard

Liam Rose, Williams R, Al-Ahmed S, Fenner C, Fragkakis A, Lupu C, Ajayi B, Bernard J, Bishop T, Papadakos N and Lui DF

St George's University Hospital, UK

The advent of EOS imaging has offered clinicians the opportunity to image the whole skeleton in the anatomical standing position with a smaller radiation dose than standard spine roentgenograms. Current NICE guidelines do not recommend EOS scans over x-rays. We retrospectively reviewed 103 adults and 103 pediatric EOS scans of standing whole spines for those undergoing investigation for spinal deformity in a tertiary spinal center. We matched this against a retrospective control group who underwent traditional roentgenograms whole spine imaging. We aimed to compare the average radiation dose between the two modalities. We utilized a validated lifetime risk of cancer calculator to estimate the additional mean risk per study. In the Adult EOS Group (AEG) the mean estimated effective dose of AP was 0.08 mSv (0.04-0.15) and Lateral 0.06 mSv (0.03-0.14). Conversely in the Adult Roentgenograms Group (ARG) the mean AP was 0.49 mSv (0.15-1.88) and Lateral was 0.29 mSv (0.07-1.20). In the Pediatric EOS Group (PEG): the mean dose of AP was 0.07 mSv (0.02-0.21) and Lateral 0.04 mSv (0.02-0.11). Conversely Pediatric Roentgenograms Group (PRG) had a mean dose in AP of 0.37 mSv (0.03-5.92) and in lateral of 0.17 mSv (0.03-0.44). Differences in additional lifetime risk of cancer per scan: ARG: AES Male 557%, Female 557%, PRG: PEG Male 491%, Females 491%. Standard plain film imaging of the whole spine requires approximately five-times higher doses of radiation compared to dual planar EOS scans. There is an approximately 5-fold increase in the risk of cancer for all groups with roentgenograms over EOS. We directly challenge the NICE guidance and recommend EOS dual planar imaging in favor of plane roentgenograms for investigation of Spinal Deformity.



Biography

Liam Rose is an Orthopedic Surgical Registrar in South West London, and has an interest in Spinal Surgery.

e: ld.rose@nhs.net