



In response to: SDEF-D-22-00193R5-Ad hoc from editor to author

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Dear Editor,

Thank you to your reader for taking an interest in our study, and for engaging in this very important discussion around radiation safety, which concerns the health of patient and clinicians, alike.

We are very fortunate enough to have many tools at our disposal for reducing radiation, and our organisation has indeed employed other methods such as low dose radiographs, with newer receiver and digital image-stitching technologies. As it happens, our study did compare EOS to said low-dose methods, which are used exclusively in our paediatric radiology department. The vast majority of plain roentgenograms in spinal patients are performed PA where possible, and with that being said, EOS still offered a significant reduction in radiation. This allows both surgeons and orthotists to closely monitor progression and correction, which has improved our success rates with non-operative bracing.

Undoubtedly, EOS comes with its limitations, however given the other perceived benefits not examined in our paper (such as image quality and simultaneous PA and lateral scanning in the standing position) we felt the investment was reasonable. The technology can also be used by other departments, such as limb reconstruction and arthroplasty surgeons. We hope you will be able to read about our experience on these matters shortly.

I appreciate the older studies will have employed technologies which required higher doses of radiation, and the paper which we referenced by Hoffman et al. did suggest from their data, breast cancer risk was elevated [1]. Similarly, Doody et al. came to a similar conclusion after over a 40-year follow-up, and a cohort which has on average over 24 studies each [2]. The cumulative doses those patients were exposed to are not entirely comparable due to how they are represented.

Your study, which looked at South Australian Registry data is certainly impressive in its magnitude, however like all registry data, has limitations pertaining to data entry and capture [3]. The frequency of imaging is not described, and this is the most crucial determinant of radiation exposure. Furthermore, follow-up did average 18 years on an exclusively surgical group, which is not completely representative of lifetime risk for all patients investigated for scoliosis.

That being said, I have no doubt your conclusion is completely correct for your participants, but should be interpreted with caution if this is extrapolated forwards to include all children undergoing ionising radiation investigations, for the entirety of their life.

The efforts to reduce radiation in developing tissues is not one which has gone away. The ethos of reducing radiation where possible will persist and it is one that, I am sure, all will continue to uphold.

Sincerely,

Liam Rose

References

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