In this month’s EJVES the paper by Patel and colleagues provides an in-depth analysis of the occupational radiation exposure relevant to vascular interventionalists measured in the operating environment. The paper provides detailed information regarding the risks from performing EVAR and TEVAR and highlights an important point — that vascular interventionalists need to pay due regard to the radiation risks to themselves and their team and find methods to reduce this risk.

The extrapolated dose quoted in this article is concerning. Moreover, arterial specialists are becoming ever more ambitious and procedures more and more complex with longer screening times and radiation exposure as a result. The dose may well be set to rise dramatically in the coming years, underlining the importance of compliance with standard radiation safety measures. While radiation protection training and adherence is vital, it is probably undervalued by those that learnt their trade in the operating theatre of old. These points are well documented in Patel’s article, but the levels of total body effective radiation dose to operating staff during endovascular procedures that may occur with more frequent and more complex practice is worrying and means that simple measures to protect staff are not enough.

Technological advancements in low-dose imaging championed by the major companies in this field are a big step in reducing radiation dose while maintaining the necessary imaging quality to perform complex procedures. At the same time, it is vital that we continue to embrace new imaging techniques to reduce the need for repeated digital subtraction angiogram sequences. Fusion of pre- or intraoperative cross-sectional imaging is clearly effective in reducing operator dose, and other imaging technologies such as intravascular ultrasound may compliment these approaches.

Integration of new catheter technologies that allow the operator to be removed from the radiation source, such as robotic catheter systems are gaining favour in many centres both for vascular intervention (Magellan, Hansen Medical, Mountain View, CA, USA) and cardiac electrophysiological ablation. These systems allow the operator to navigate through the vascular tree from a workstation removed from the radiation source. The only occupational radiation exposure encountered in robotically assisted procedures is therefore in the delivery of the intervention itself. As experience grows these systems will play a vital role in dose reduction for the operator.

The ultimate goal must be to do away with radiation all together and find novel methods to track endovascular tools without the use of radiation, or, at least in the meantime, reducing the operator dose significantly.

This paper highlights a growing problem for vascular interventionalists. Simple steps to reduce exposure are vital but may not be enough and we must look to integrate cutting-edge imaging modalities, robotic technology, and tool tracking systems to reduce operator exposure in the future.

CONFLICTS OF INTEREST

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