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Lens exclusion in CT head examinations

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CT head examinations may result in irradiation to the lens of the eye, one of the most radiosensitive tissues in the body. Standard CT head examinations expose the lens to approximately 25-103 mGy. The International Commission on Radiological Protection estimates opacity formation with doses as low as 0.5 Gy. In younger age groups, the likelihood of repeat head CT scans is increased and with it the risk of accelerated cataract formation if the lens is not avoided. Common reasons for mal-positioning include confusion, dementia and arthritis limiting mobility; features generally less prominent in the young. Undoubtedly, the diagnostic information gained from CT head scans is vital for management. In emergency cases, the need for rapid scanning may outweigh the risk to the lens; however in non-emergency cases in the young, every effort should be made to avoid this. A preliminary study across Pennine Acute Trust demonstrated >50% inclusion rate of the lens with similar results in other trust. Therefore, it is important for both specialties to integrate knowledge and experience to ensure patient safety. Departmental teaching on positioning of radiographic baseline, setting region of interest and use of head rests to achieve optimum positioning has led to radiographers obtaining anatomically sound images without the need to angulate the gantry incurring a radiation dose penalty; with promising feedback. Using our findings a new protocol is being developed, with the hope to reduce the unnecessary radiation burden to the lens during CT head scans minimizing the risk of visual impairment.

Biography

Mariyah Selmi is a Junior Doctor at Royal Oldham Hospital, Manchester, United Kingdom. She has completed her MBChB with 1st class Honors degree in Imaging Sciences at Kings College London, UK. She has multiple publications in the field of Radiology with a special interest in radiation awareness and dosimetry.

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