

عنوان مقاله:

Compliance of Radiation Dose and Image Quality in a Nigerian Teaching Hospital with the European Guidelines for Pediatric Screen-Film Chest Radiography

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خلاصه مقاله:

Introduction Blue light is a part of the spectrum with the highest energy content, which can reach the retina. The damage that it can cause to the retina is called photochemical or blue-light retinal injury. For the retinal injury assessment of the photochemical and aphakic retinal hazards in the wavelength range of 300-700 nm, use of effective spectral radiance limits ($W.m^{-2}.sr^{-1}$) seems to be slightly perplexing for ophthalmologists. However, in this study, the temperature (OC) that can emit the same effective spectral radiance limit was detected using a computer code; this method could help prevent blue-light retinal injury. **Materials and Methods** The limits proposed by International Commission on Non-Ionizing Radiation Protection for blue-light induced photochemical and aphakic eye hazards were expressed in terms of temperature by a computer code for 13 Planckian sources that produce the same radiance. The calculated temperature by the computer code, here known as threshold temperature, is the maximum source temperature that for a specified viewing distance and source diameter does not cause the exposure at the receptor position to exceed the exposure limit. **Results** In terms of threshold temperature, the exposure limits for aphakia or infant retinal injury are much lower than retinal photochemical damage. For light sources with more effective radiances, these differences reach 800 K. **Conclusion** This method allows evaluation of photochemical and aphakic retinal hazard only by comparing the calculated threshold temperature by a computer code with the temperature of the radiant source, which may be beneficial for hygienist and ophthalmic clinicians.

کلمات کلیدی:

Chest, Film, Image Quality, Pediatric, Radiation Dose, X-Ray

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