

Pengurangan dosis radiasi menggunakan metode kombinasi Screen-Film Merk Modak dan AGFA untuk pemeriksaan Thorax Anak

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Abstrak

Telah dilakukan penelitian pengurangan dosis radiasi kombinasi screen-film merk Kodak dan AGFA dengan satu kondisi FSD (Focus Surface Distance), field size (luas lapangan) dan menggunakan automatic processing yang sama. Kombinasi screen film Kodak-Kodak memberikan sensitifitas tertinggi dan dijadikan acuan. Dosis radiasi yang dihasilkan untuk mencapai densitas yang relatif sama dengan kombinasi Kodak-Kodak pada kombinasi yang lain, seperti Kodak-AGFA, AGFA-Kodak dan AGFA-AGFA meningkat masing-masing 15,38 %, 21,42 %, 35,29 %. Penambahan filter 2 mm Al menyebabkan penurunan densitas pada kombinasi AGFA-AGFA, Kodak-AGFA, AGFA-Kodak dan Kodak-Kodak sebesar masing-masing 12,5 %, 14,06 %, 14,06 % dan 3,65 %. Sedangkan penambahan filter 4 mm Al menyebabkan penurunan densitas sebesar 19,23 %, 19,11 %, 14,94%, 15,95 %. Penambahan kedua filter juga menyebabkan penurunan dosis radiasi sebesar 45,24 % (2 mm AL) dan 81,81 % (4 mm Al). Juga diukur kestabilan tegangan dan pengaruh mAs terhadap paparan serta Uji kestabilan cairan menggunakan sensitometri sebelum dan sesudah dilakukan processing film radiografi.

<hr>A study has been done on dose reduction using screen-film cross combination between Kodak and AGFA products on a given conventional X-ray machine with the same FSD (Focus Surface Distance), field size and using the same automatic processing machine. Kodak-Kodak combination gave the highest sensitivity and was used as a reference. Other cross combinations will increase doses by 15.38 % (Kodak-AGFA), 21.42 % (AGFA-Kodak), 35.29 % (AGFA-AGFA) as compared to the reference (Kodak-Kodak). The addition of 2 mm Al filter will produce lower densities by consecutively 12.5 %, 14.06 %, 14.06 % and 3.65 % as compared to the screen-film combination without filter. While the addition of 2 mm and 4 mm Al filters will produce even further lower densities by consecutively 19,23 %, 19,11 %, 14,94%, 15,95 %. Both filter additions also cause dose reduction by 45.24% and 81.81% consecutively. Voltage stability and the effect of mAs to the exposure were also studied as well as sensitometric studies before and after film processing.