

Pemantauan dosis personel kateterisasi jantung di Wilayah Kerja Balai Pengamanan Fasilitas Kesehatan Jakarta: studi penggantian film badge dengan TLD badge = Dose monitoring of cardiac catheterization personel in the Work Area of Jakarta Health Facility Security Centre: study of replacement of film badge with TLD badge

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Abstrak

Prosedur kateterisasi jantung berkaitan erat dengan penggunaan teknik fluoroskopi dalam waktu relatif lama. Dalam penelitian ini dilakukan analisa dosis radiasi personel kateterisasi jantung berdasarkan koleksi data hasil pantauan berkala Balai Pengamanan Fasilitas Kesehatan Jakarta dari berbagai rumah sakit. Untuk verifikasi, dilakukan pengukuran dosis personel kateterisasi jantung selama berlangsung prosedur Coronary Angiography dan Percutaneous Coronary Intervention. Setiap personil menggunakan 4 dosimeter, 2 film badge dan 2 TLD badge, dimana 1 film badge dan 1 TLD badge diletakkan di bawah apron sedangkan yang lain berada di luar apron dekat leher. Dari koleksi data diperoleh informasi dosis personel pengguna film badge per tahun pada umumnya berada dalam rentang (0,10–10) mSv untuk dokter, (0,10–7,20) mSv untuk perawat, dan (0,10–1,30) mSv untuk radiografer. Adapun dosis personel pengguna TLD badge per tahun tercatat (0,01–14) mSv untuk dokter, (0,01–14,50) mSv untuk perawat dan (0,01–2,50) mSv untuk radiografer. Dari hasil pengukuran di 3 rumah sakit diperoleh estimasi dosis efektif per tahun tertinggi dokter dalam rentang (4,96–8,71) mSv, perawat dalam rentang (7,51–37,34) mSv dan radiografer dalam rentang (7,40–25,32) mSv. Hasil pengukuran menunjukkan para personel kateterisasi jantung berpotensi menerima dosis tinggi, dapat melebihi nilai batas dosis sebesar 20 mSv/tahun.

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Cardiac catheterization procedures were closely related to the use of fluoroscopy techniques in a relatively long time. In this study, radiation dose analysis for cardiac catheterization personnel was carried out based on data collected from the results of periodic monitoring of the Jakarta Health Facility Security Center from various hospitals. For verification, dose measurements of cardiac catheterization personnel were performed during the Coronary Angiography and Percutaneous Coronary Intervention procedures. Each personnel used 4 dosimeters, 2 film badges, and 2 TLD badges, where 1 film badge and 1 TLD badge were placed under the apron while the others were outside the apron near the neck. From the data collection, information on the dose of personnel using the film badge per year was generally in the range (0.10–10) mSv for doctors, (0.10–7.20) mSv for nurses, and (0.10–1.30) mSv for radiographers. The dose of personnel using the TLD badge per year was recorded (0.01–14) mSv for doctors, (0.01–14.50) mSv for nurses, and (0.01–2.50) mSv for radiographers. From the results of measurements in 3 hospitals, the highest estimated effective dose per year was doctors in the range (4.96–8.71) mSv, nurses in the range (7.51–37.34) mSv, and radiographers in the range (7.40–25.32) mSv. The measurement results show that cardiac catheterization personnel had the potential to receive high doses, which can exceed the dose limit value of 20 mSv/year.