MONITORING OF DOSES TO PATIENTS IN INTERVENTIONAL CARDIOLOGY: FIRST RESULTS FORM THREE SERBIAN HOSPITALS

Olivera Ciraj-Bjelac[1], Danijela Arandjic[1], Dusko Kosutic[1]

[1] Vinca Institute of Nuclear Sciences, M.P. Alasa 12-14, Vinca, Belgrade, Serbia, ociraj@vinca.rs

***Abstract* – The aim of this work is to assess level of radiation dose to patients in interventional cardiology procedures in three large Serbian hospitals and to investigate possibility for setting of trigger levels if dose quantities exceed certain levels. Three dedicated interventional cardiology laboratories were included in the survey. Information on annual workload was estimated based on number of coronary angiography (CA) procedures and percutaneous coronary interventions (PCI). Patients doses were assessed in terms of air kerma area product (P_{KA}) and air kerma in international reference point (K_{IRP}). Results were compared with internationally proposed Diagnostic Reference Levels (DRL) and similar surveys' results. Average total annual number of procedures was 820, 1100 and 2500 in three hospitals, respectively, while total number of dose measurements was 337. All three centers reported P_{KA} values higher than 100 Gy·cm^2 and even values above 200 Gy·cm^2, corresponding to 42% and 16% of all measurements. Measured K_{IRP} value higher than 5 Gy was reported in one center, indicating that skin doses associated possibility of skin injuries were observed. P_{KA} mean hospital values for CA ranged from 33 to 78 Gy·cm^2 and for PCI from 73 to 113 Gy·cm^2, while associated vales for K_{IRP} were: 0.45-1.2 Gy and 1.1-1.8 Gy, respectively. Comparison of obtained results with international DRL indicated that significant number of procedures is not optimally performed as in some centers more than a half of patients receive doses above DRL. The presented results are valuable input for dose optimization strategies and increased awareness related to importance of dose management. With respect to high dose values, risk for stochastic effects and tissue reactions, dose management methods were proposed.**