

VARIATION IN RADIATION DOSES IN PEDIATRIC CARDIAC CATHETERIZATION: BASIS FOR OPTIMIZING RADIATION PROTECTION

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Pediatric cardiac catheterization involves diagnostic and therapeutic procedures that range from simple to complex which can subject pediatric patients to varying radiation doses. The study aims to determine the variation in patient entrance doses in terms of dose area product values and to investigate the methods for optimizing radiation protection. A total of 210 pediatric patients belonging to age groups 0, 1, 5 and 10 who undergo diagnostic and 5 selected therapeutic procedures at King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia are included in the study. Therapeutic procedures include COA, PDA, RF ablation, pulmonary and septostomy. Fluoroscopy and cine radiography are used in all procedures. Patient demography (weight, age, gender and height), radiographic technique factors, fluoroscopy and cine time, frame rate, and dose area product values are taken from patients records. Effective doses for each procedure are estimated from the DAP values. The mean DAP and effective dose per procedure are analyzed for correlation with patient equivalent cylindrical diameter, weight, fluoroscopy time and number of frames. Factors influencing the variation in doses are investigated. Initial results show that PDA occlusion has the highest mean DAP value of 2,484 cGy cm² while the diagnostic procedure has the lowest value of 821 cGy-cm².

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