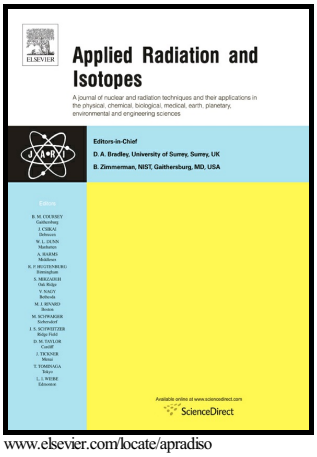

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Estimation of effective dose and radiation risk in pediatric barium studies procedures

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Abstract

The objectives of this study are to assess pediatric radiation exposure in certain barium studies and to quantify the organ and effective doses and radiation risk resultant from patients' irradiation. A total of 69 pediatric barium studies for upper and lower gastrointestinal tract. Patients' radiation dose was quantified in terms of Entrance surface air kerma (ESAKs) using exposure parameters and DosCal software. Organ and effective doses (*E*) were extrapolated using national Radiological Protection Board software (NRPB-R279). The mean ± (SD) and the range of patient doses per procedure were 3.7±0.4 (1.0-13.0) mGy, 7.4±1.7(5.5-8.0) mGy and 1.4±0.9 (0.5-3.6) mGy for barium meal, swallow and enema, respectively. The mean effective doses were 0.3±0.03(0.08-1.1) mSv, 0.2±1.6(0.44-0.7) mSv and 0.3±0.9(0.1- 0.8) mSv at the same order. The radiation dose were higher compared to previous studies. Therefore, pediatrics are exposed to avoidable radiation