



Contribution ID: 2

Type: **Oral**

Involvement of medical physicists in medical practices operating a fluoroscopy system

Friday, 28 October 2022 13:25 (10 minutes)

Purpose: According to Article 36 of the Radiological Protection Ordinance, medical physicists must be involved in fluoroscopy in the medium- and high-dose range (i.e. examinations resulting in effective doses for the patients > 1 mSv). While the involvement has become well established in hospitals and radiological institutes, the situation in medical practices operating a fluoroscopy system is unclear. Therefore, the Federal Office of Public Health conducted a survey to assess the indications and to determine the dose ranges of the fluoroscopy-based procedures **in the medical practices**.

Methods: Between June and August 2021, information from 103 medical practices operating a fluoroscopy system was collected. The information contained details on the indications, the body/organ regions examined and the dose area product (DAP) and duration of fluoroscopy of at least three of the most recently performed procedures per indication. To estimate the effective dose, the DAP was multiplied by a conversion coefficient provided on the IAEA website and in ICRP publication No. 117. Results are presented as median (interquartile range).

Results: In most of the medical practices (85), fluoroscopy is used in pain therapy, followed by interventions in gastroenterology (9), urology (6), angiology (2) and cardiology (1). DAP and duration of fluoroscopy are in pain therapy of spine/pelvis/hip 0.10 (0.04-0.24) mSv and 19 (8-39) s; for cystography 0.27 (0.12-0.47) mSv and 29 (11-35) s; for nephrostomy 0.44 (0.11-0.66) mSv and 38 (13-78) s; for dilatation of esophagus 1.35 (1.19-1.86) mSv and 175 (158-280) s; for dilatations in the abdomen 0.59 (0.47-0.76) mSv and 330 (171-426) s; for PTA in pelvis/leg 2.78 (1.02-4.42) mSv and 525 (246-656) s. For coronary angiography, only three datasets were collected: 8.58 mSv and 180 s, 1.66 mSv and 291 s, 6.07 mSv and 174 s.

Conclusion: In pain therapy, the involvement of medical physicists is not legally required, for gastroenterological and urological procedures, it should be assessed individually and for angiological and cardiological procedures, it is mandatory.

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Session Classification: Session IV: Radioprotection, Treatment Techniques

Track Classification: Radioprotection