PATIENT IRRADIATION DURING INTERVENTIONAL CARDIOLOGY PROCEDURES: A MULTI-CENTRIC SWISS REGISTRY

Poster Contributions
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Background: As the number and complexity of fluoroscopically-guided interventions increase, effort has to be made to optimize the X-ray dose delivered to the patient. In order to set up this optimization process, the clinical practice for cardiology centers has to be analyzed with great statistical power and compared to the local and national data.

Methods: The data of 8 Swiss cardiology centers have been collected using CardioReport (CVX Medical, France). A total number of 46,591 interventions has been recorded: Coronary angiography (CA, 24,261), coronary angioplasty alone (PTCA, 1,099), CA+PTCA (18,797), TAVI (221) and shunt closure (622). The collected dose indicators were cumulated air kerma (AK), cumulated kerma-area product (KAP), fluoroscopy time (FT) and number of images per procedure. Data analysis was performed using an in-house software solution (Memoways, Switzerland) in terms of the first, second and third quartile (Q1, Q2 and Q3) of the dose indicator distributions.

Results: A significant difference was found in Q3 of the KAP for CA. The mean value was 69 Gy cm², with the lowest Q3 at 50 Gy cm² (-28%), and the highest at 90 Gy cm² (+30%). KAP Q3 value for the 8 centers was above the RL (Reference Level) for CA+PTCA with significant differences between centers (lowest Q3=99 Gy cm² vs. highest Q3=212 Gy cm²). Q3 for fluoroscopy time for CA and CA+PTCA were below the RL at 6.9 min and 13.5 min respectively.

Conclusion: Irradiation (AK and KAP) of patients during CA and CA+PTCA was above the RL in most Swiss centers with significant differences between centers. Effort should be made to decrease the number of image acquisition and installation must be controlled. Practice harmonization should start with extra efforts towards optimal beam collimation.