

# Interventional radiology: management of high patient dose procedures

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## Introduction

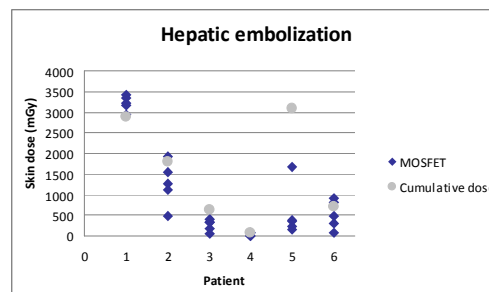
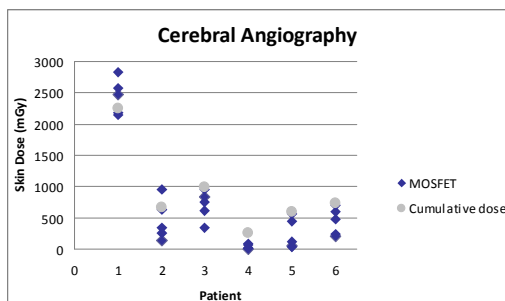
The number of interventional radiology procedures is increasing over the years due to their clinical safety and efficacy. However, these procedures may be related to high radiation doses to the patient [1, 2]. Management of the stochastic risks can be performed by monitoring the dose-area product (DAP) and comparing it to available Diagnostic Reference Levels (DRL). Anticipation of deterministic effects can be predicted by monitoring the cumulative dose [3] at the Intervention Reference Point (IRP). The aim of the study is to demonstrate the reliability of the IRP concept and to provide interventionists with a method to control risks associated with the use of ionizing radiation.

## Material and Methods

Patient data for a six-month period were collected and analyzed for hepatic embolization and cerebral angiography. Data included the dose-area product, the fluoroscopy time (T), the number of images (N) and the cumulative dose at the interventional reference point ( $D_{IRP}$ ). Patient dosimetry was also performed with the use of MOSFET dosimeters. The statistical software SPSS was employed for data analysis.

## Results

A good correlation was found between the MOSFET dosimeters and  $D_{IRP}$ . Maximum skin dose reached 9.6 and 5.7 Gy during hepatic embolization and cerebral angiography, respectively. The 75-percentile of the patient dose was calculated and compared with the national DRLs.



## Discussion

The use, validity and limitations of  $D_{IRP}$  and DRL will be discussed during the presentation. Actions have to be taken to improve patient dose management. In particular, post-procedure follow-ups should be part of the radiological procedure when the skin dose is suspected to be over 2 Gy [4].

## References

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- [4] Verdun FR, Bochud F, Gundinchet F, Aroua A, Schnyder P, Meuli R.: Quality initiatives radiation risk: what you should know to tell your patient. *Radiographics.* (2008) 28(7):1807-16