

## Radiation Exposure During Prostatic Artery Embolisation: A Systematic Review and Calculation of Associated Risks

Valentin Zumstein, Jörg Binder, Sabine Güsewell, Patrick Betschart, Manolis Pratsinis, Gautier Muellhaupt, Lukas Hechelhammer, Hans-Peter Schmid & Dominik Abt

Although evidence supporting the efficacy and safety of prostatic artery embolisation (PAE) is increasing, potential associated risks of ionising radiation in this context remain largely unknown. We systematically reviewed reports on radiation exposure (RE) during PAE in the literature and estimated the risk RE poses using a Monte Carlo dose calculation algorithm. Of 842 studies screened, 22 were included. The overall mean dose area product (DAP) was 181.6 Gy·cm (95% confidence interval 125.7-262.4). The risk model for the effects of RE in a 66-yr-old patient exposed to DAP of 200 Gy·cm showed that the probability of cancer death from the intervention was 0.117%. The highest specific lifetime risk was expected for leukaemia (0.061%). Wide DAP variation between individual studies (medians ranging from 33.2 to 863.4 Gy·cm) indicate large potential to reduce RE during PAE at some study centres. RE must be included in patient counselling on PAE, especially for younger patients. **PATIENT SUMMARY:** We systematically assessed radiation exposure during prostatic artery embolisation (PAE) in the literature and simulated the associated risks in a computer model. PAE exposes patients to very low but not negligible risks, which are most relevant for younger men. This should be discussed with patients before PAE.

<b>type</b>	journal paper/review (English)
<b>date of publishing</b>	14-05-2020
<b>journal title</b>	Eur Urol Focus
<b>ISSN electronic</b>	2405-4569