

## THE RADIATION EXPOSURE IN VIDEOURODYNAMICS – NO NEED TO WORRY?

### Hypothesis / aims of study

Urodynamical examinations are the gold standard diagnostic approach in complicated storage and voiding dysfunction of the lower urinary tract. However, the dynamic display during filling and voiding of the human bladder by fluoroscopy during videourodynamics is even increasing the quality of diagnosing these dysfunctions. Based on several restrictions by state department, the fear against radiation exposure as well as the scarce amount of data was the target of this study by evaluating and comparing the radiation exposure in videourodynamical assessments.

### Study design, materials and methods

We analyzed prospectively 120 consecutive videourodynamics in the time period of July 2012 till December 2012. Beside the evaluation of radiation time, the dose area product was measured automatically by the fluoroscop and documented.

All videourodynamical assessments were performed standardised on the same fluoroscopic device with at least one refill to confirm the diagnosis. After evaluating these parameters a comparison to other diagnostical radiological procedures were performed.

### Results

We observed a mean dose area product of 487.7 ( $\pm 336$ ) cGy x cm<sup>2</sup> with mean radiation time of 97.5 ( $\pm 34$ ) s.

Using the data of the Bundesamt für Strahlenschutz (federal agency of radioprotection) from 2010 we could evaluate comparable values in other diagnostical procedures.

Radiogram	MDAP (cGy x cm <sup>2</sup> )	Radiogram	MDAP (cGy x cm <sup>2</sup> )
Skull ap	65	Abdomen	300
Skull lat	60	Phlebography Leg - Pelvis	500
Thorax pa	16	Coronary Angiography	3500
Thorax lat	55	Colonic contrast enema	3700
Thoracic v. ap	130	Ileal contrast enema	4400
Thoracic v. lat	170	Percutaneous transluminal angioplasty	5000
Lumbary v. ap	230	Percutaneous transluminal coronary angioplasty	6000
Lumbary v. lat	420		
Pelvis ap	300	Videourodynamic	487.7

Tab 1: Reference values for adults in diagnostical radiological procedures

### Interpretation of results

The mean dose area product of a regular videourodynamical assessment is comparable to a conventional radiogram of the lumbar column. With respect to other fluoroscopic examinations such as colonic contrast enema videourodynamics show a much lower exposure rate. However with respect to the standard deviation it can be stated that radiation exposure is related to the different complexity of the lower urinary tract dysfunction as well as the habitus of the patient. Furthermore the qualification and experience of the examiner is also related to this matter.

### Concluding message

The radiation exposure of videourodynamics is low and should not be considered as harmful.

### Disclosures

**Funding:** None **Clinical Trial:** Yes **Public Registry:** No **RCT:** No **Subjects:** HUMAN **Ethics not Req'd:** it was an analyses of a required examination (videourodynamics) **Helsinki:** Yes **Informed Consent:** Yes