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Title: THE INFLUENCE OF URINE PRODUCTION RATE AND TIME OF DAY ON VOIDED VOLUME

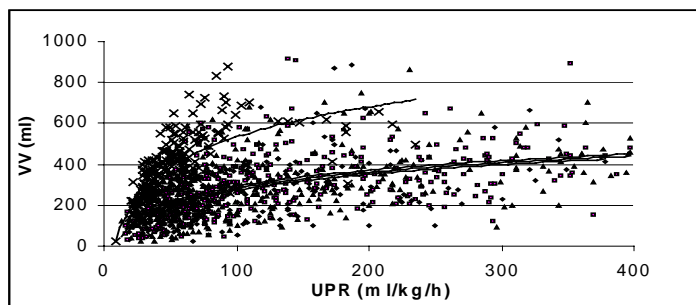
Aims of study:

To investigate the influence of urine production rate (UPR) on the storage capability of the bladder measured as voided volume (VV), and to examine if the time of day changes the influence of UPR on VV.

Methods:

40 young healthy men of the age 18-33 years without any urological symptoms recorded all their voidings during 5 days on a homeflowmeter (Dantec Dacapo). Before inclusion the volunteers were tested several times with uroflow and residual urine determination with ultrasound. Any residual volume excluded the person. The time of voiding and voided volume was recorded. The recorded data were transferred to a computer and the period between two voidings calculated. Since none of the volunteers had residual urine, total bladder emptying was expected. With this in mind VV must be the amount of urine produced during the period since last micturition. VV was calculated as: $VV / \text{time since last micturition}$. The day was divided in four periods: **I**:Morning (second micturition after rise to 2p.m.), **II**:afternoon (2p.m. to 8p.m.), **III**:evening (8p.m. to bed time) and **IV**:night (bedtime to morning void(rise)).

Results:



The average VV was: I: 259ml, II: 292ml, III: 274ml and IV: 380ml.

The average UPR was: I: 114ml/h, II: 127ml/h, III: 119ml/h and IV: 55ml/h.

For all persons the average VV was highest for the morning void, but for all persons the largest voided volume seen was during period III. The study showed that the relationship between UPR and VV is similar for the three periods where the person is awake, the regression lines are almost laying on top of each other. It is showed, that an increase in UPR is followed by an increase in VV.

During night the relationship is significant different, showing a high VV even with a low UPR. (Figure)

Conclusion:

In normal young men there is a relationship between the UPR and VV. This relationship doesn't differ during the day, but during sleep, the bladder has a different sensitivity for the filling rate. The average VV and UPR are almost similar during daytime but significant different during sleep. This information must be kept in

mind evaluating patients with mainly nighttime symptoms. Micturition data recorded during day cannot directly be used to evaluate nighttime micturitions and bladder symptoms. In these kind of patients nighttime investigations with recording of night micturition data are recommended.

The study has been funded by the Enuresis Foundation, Aarhus, Denmark.