

DIFFERENCE IN UROFLOWCURVES OF VOIDING ON FIXED TIMES COMPARED TO MICTURITION WHEN FEELING URGE: A PILOT STUDY

Hypothesis / aims of study

Nearly one third of the children are not toilet trained when becoming 2.5 years.[1] Kindergarteners play a major role in the toilet training process since children spend almost half of their time at school. To limit workload, 67% of kindergarteners schedule fixed voiding times.[2] Limiting access, as occurs when infants can only void on fixed times, might lead to a dysfunction of the pelvic floor and in time of bowel and bladder. So it could be stated that it is related to a higher odd of dysfunctional elimination. In contrast free access to toilet facilities making it possible for a child to go to the toilet at its own initiative will contribute to healthy elimination patterns in school children.[3] No consensus is reached about the impact of voiding at fixed times compared to voluntary micturition on own initiative on uroflowcurves. It appears important to verify this, since abnormal voiding patterns can be indicative of dysfunctional voiding. It can be hypothesed that voiding at fixed moments might lead to different uroflowcurves due to abdominal straining or a presented dyscoordination between external urethral sphincter and detrusor muscle. The aim of the study is to examine uroflowcurves of healthy infants aged 2.5 to 5 years in order to determine whether voiding at fixed times will induce different uroflowcurves compared to voluntary micturition occurring on a child's own initiative.

Study design, materials and methods

Uroflowcurves of 58 healthy children aged 2.5 to 5 years were evaluated. The infants were asked to void 2 times when feeling the need to void and 2 times on in advance fixed times. Flowcurves were assessed by two independent observers. One observer was very experienced in analyzing urodynamic parameters and uroflowcurves. The second observer was trained in urodynamics. Primary outcome measure included uroflowcurve, related to different voiding parameters. Statistics were performed in SPSS 23.

Results

A significant difference was observed in uroflowcurve when voiding on fixed times compared to voluntary micturition occurring on a child's own initiative. Forty-three percent of the uroflowcurves of voiding on fixed times were reported to be abnormal compared to 63.6% in voiding when feeling urge ($p=0.049$). Fifty percent of the flowcurves when voiding on fixed times were bellshaped ($N=34$), 19.1 % staccato, 13.2% tower or interrupted and 4.4% had a plateaushape compared to respectively 33.3% ($N=18$), 35.2%, 7.4%, 13% and 11.1%. Uroflowcurveshape of voluntary micturition occurring on a child's own initiative is related to the voided volume (Pearson correlation: 0.326, $p=0.018$)

Interpretation of results

The results of this study indicate that voiding in infants aged 2.5-5 years occurring on a child's own initiative lead to a higher percentage of abnormal uroflowcurves compared to voiding on fixed times. This finding was unexpected. As infants oft had small voiding volumes it might be hypothesed that voluntary voiding gets more postponed. Contrary to expectations, this study did not find that voiding on fixed times will lead to higher percentages abnormal curves which may be indicative for dysfunctional voiding.

Concluding message

The purpose of the current pilotstudy was to determine whether voiding on in advance set times will lead to different uroflowcurves compared to voluntary micturition occurring on a child's own initiative. The most obvious finding to emerge was that voiding on fixed times lead to more coordinated bellshape uroflowcurves. Further research is necessary to detect whether in a young, just toilet trained population voiding on fixed times will not lead to more dyscoordinated micturitions and so will not lead to a higher odd on dysfunctional voiding.

References

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Disclosures

Funding: NONE **Clinical Trial:** Yes **Public Registry:** No **RCT:** No **Subjects:** HUMAN **Ethics Committee:** Comité voor Medische Ethiek Comité for medical Ethics UZA **Helsinki:** Yes **Informed Consent:** Yes