267

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'NOCTURNAL POLYURIA' AS A FACTOR IN MONOSYMPTOMATIC NOCTURNAL ENURESIS: 48-HOUR URINARY OUTPUT AND OSMOLALITY IN 34 ENURETIC AND 62 NON-ENURETIC SCHOOL-AGE CHILDREN

Aims of Study

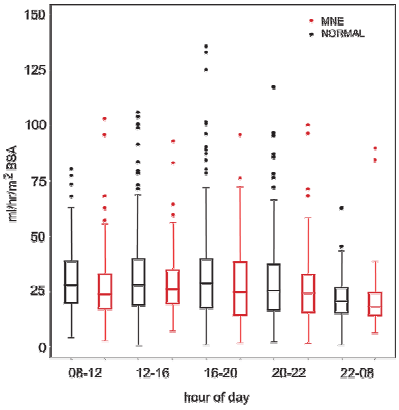
'Nocturnal polyuria' and 'small functional bladder capacity' are important concepts, used to define subtypes in the population of children with monosymptomatic nocturnal enuresis (MNE). Subtyping should better predict success or failure of treatment with synthetic dDAVP. To assess the prevalence of 'nocturnal polyuria' in bedwetting children, we compared the timed output of urine and its osmolality in prepubertal non-enuretic and enuretic children.

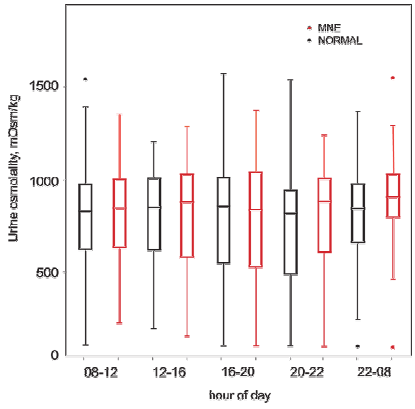
Methods

In 62 non-enuretic and 34 enuretic school-age subjects, over a period of at least 48 hours, every voiding was timed and measured, and sampled. In the 34 enuretics, nocturnal urinary output was obtained by waking up the child at 23:00h, 03:00h and 07:00h. In all samples, osmolality was measured with thaw point osmometry (Advanced™ osmometer). All collections were performed at home, with free intake of food and drinks.
For both groups, output of urine and osmoles was expressed as ml and mOsm per m² BSA per hour, on a 48-hour time scale [1]. For comparison with data published [2], our data for output of urine and urine osmolality were then regrouped into 5 time blocks: 08:00-12:00h, 12:00-16:00h, 16:00-20:00h, 20:00-22:00h, 22:00-08:00h. For each time block, separate 25%-75% box plots were made (5% and 95% limits), for urinary output and for osmolality.

Results

In the time block 22:00h to 08:00h ('night'), urinary output is significantly lower in both enuretics and non-enuretics, but without a significant difference between these two groups: the 25%-75% box for enuretics is slightly lower and smaller than for non-enuretics.
The values for urine osmolality in the time block 22:00h to 08:00h have almost identical





distributions for enuretics and non-enuretics: the 25%-75% block for enuretics is smaller and higher than for non-enuretics.

Conclusions

In our study in prepubertal school-age children, 22:00-08:00hr ('night') urinary output and urine osmolality do not differ significantly between enuretics and non-enuretics. This is in contrast with what has been published on adolescent subjects, where enuretics had a significantly higher output of urine 'at night' than during daytime, generating the concept of 'nocturnal polyuria' [2].

Outputs of osmoles and water are circadian variables, closely linked by the renal concentrating mechanism. Studying this type of variable with arbitrarily chosen units of time might mask important differences between enuretic and non-enuretic children.

References

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