

SLEEP AND PSYCHOLOGICAL FUNCTIONING IN CHILDREN WITH MONOSYMPTOMATIC NOCTURNAL ENURESIS.

Hypothesis / aims of study

The aims of this study are first to investigate which psychological problems are present in children with monosymptomatic nocturnal enuresis (MNE) and nocturnal polyuria (NP). Second, to explore whether these psychological problems are related to specific characteristics of enuresis: fluid intake, bladder volume, number of wet nights and number of nights with nocturnal polyuria. Third, to investigate whether cortical arousals and periodic limb movements (PLMS) during sleep are related to daytime psychological functioning.

Study design, materials and methods

Thirty children (7 girls) 6 to 16 years (mean 10.43y, SD (+/-3.08)) with MNE and NP referred to a tertiary enuresis centre were included. This multi informant multi method study includes overnight video-polysomnography, questionnaires, clinical interviews and neuropsychological testing.

Results

Eighty percent of the children had at least one psychological, motor or neurological difficulty, most common (26.7%) was the comorbid diagnosis of Attention Deficit Hyperactivity Disorder. Fluid intake had a positive linear relationship with externalizing symptoms ($\rho=0.463$, $p<0.05$), and a negative linear relationship with self-esteem ($\rho=-0.425$, $p<0.05$), auditive memory ($\rho=-0.448$, $p<0.05$) and sustained attention ($\rho=-0.499$, $p<0.01$). An increase in bladder volume was associated with an increase of anxiety/depressive symptoms ($\rho=0.395$, $p<0.05$), spatial recognition memory ($\rho=0.534$, $p<0.01$) and a decrease of attention problems ($\rho=-0.585$, $p<0.01$), inhibition problems ($\rho=-0.395$, $p<0.05$), social problems ($\rho=-0.395$, $p<0.05$), auditive memory ($\rho=-0.421$, $p<0.05$) and orderly/tidiness problems ($\rho=-0.518$, $p<0.01$). Number of wet nights had a positive linear relationship with social problems ($\rho=0.370$, $p<0.05$) and anxiety/depression problems ($\rho=0.403$, $p<0.05$) and a negative linear relationship with social self-esteem ($\rho=-0.416$, $p<0.05$). Finally, the number of nights with nocturnal polyuria had a positive linear relationship with problems in executive function ($\rho=0.663$, $p<0.01$) and a negative linear relationship with quality of life ($\rho=-0.504$, $p<0.05$). An increase in PLMS and in cortical arousals were both associated with an increase of the score on the Pediatric incontinence Quality of life questionnaire (PinQ), indicating a lower quality of life (QoL), according to the child (respectively $\rho=0.517$, $p<0.01$; $\rho=0.431$, $p<0.05$). There is a positive linear relationship between the PLMS and rulebreaking behaviour according to the parents ($\rho=0.413$, $p<0.05$). There is a positive linear correlation between PLMS and sustained attention ($\rho=0.388$, $p<0.05$). Cortical arousals have a negative linear relationship with planning problems, an executive function, according to the teachers ($\rho=-0.409$, $p<0.05$).

Interpretation of results

Children with MNE based on NP experience problems in daytime functioning and emotional wellbeing in relation to their wetting problem at night. Moreover, PLMS and cortical arousals are both associated with a lower QoL of the child.

Concluding message

Not only night-time symptoms of enuresis have an influence on the child's function and emotional wellbeing, also daytime symptoms such as fluid intake or bladder volume are of concern. PLMS and cortical arousals are associated with a lower QoL of the child. Further research is necessary to clarify it all.

Disclosures

Funding: none **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** Ethical Institutional Board of the Ghent University Hospital **Helsinki:** Yes **Informed Consent:** Yes