

PRIMARY NOCTURNAL ENURESIS PERSISTENT TO ADULTHOOD, FUNCTIONAL EVALUATION

Aims of Study

while in adults the incidence is not well agreed upon. In a report by Robertson et al, they estimated the incidence of monosymptomatic nocturnal enuresis (MNE) to be 1%¹, while in a review by Norgaard et al², the incidence of nocturnal enuresis in adolescents and adults was found to be 2–3%. The incidence of nocturnal enuresis (NE) in adults (over 18 years of age) ranges from 0.5 to 2% for most authors. The target of the present study is to define bladder function in adults having persistent NE.

Methods

All the patients fulfill the following criteria: over 18 years of age, neurologically free, bed-wet themselves more than twice per week, suffering from nocturnal enuresis as the leading symptom that stimulated them to seek urologic care and are willing to undergo invasive urodynamic investigation. All the patients were asked to stop any treatment for their condition for at least 2 days before having urodynamic examination. After reviewing their general and abdominal examination in the outpatient clinic file, neuro-urologic examination, including DRE, knee jerk, ankle jerk and sensations in the saddle area, was carried out.

Urodynamic examination was conducted. A multichannel computed system was used (Duet, Dantec, Denmark). 8 F. dual lumen catheter was used for simultaneous bladder filling and pressure measurement. 8 F. rectal catheter was used for abdominal pressure recording. Distilled water was used for bladder filling at room temperature at a filling rate of 50 ml/min. In patients who accepted to undergo voiding cystometry (29 patients), voiding was accomplished in the standing position for males and in the sitting position for females. A rotating drum flowmeter was used for urethral flow measurement.

Pressure flow studies were interpreted using Schafer's nomogram. The technique, definitions and units of the urodynamic measurements conform to the standards proposed by the International Continence Society. Statistical analysis was accomplished through 2-tail *t* test for paired samples.

Results

7 (3.7%) patients had detrusor instability during filling cystometry without diurnal symptoms. Overall mean maximum cystometric capacity was 419.2±142 ml, mean bladder compliance was 51.3±39.7 ml/cmH₂O. Among males with NE (n = 25), their mean age was 23.8±7.7 years, mean maximum cystometric capacity was 453±173 ml and compliance was 56±42 ml/cmH₂O, while among females (n= 27), mean age was 23.4±6.1 years, mean capacity was 388±98 ml and compliance was 46.7±36.7 ml/cmH₂O.

20 patients had detrusor instability (38.5%), 12 out of 27 (44.4 %) females had instability while only 8 out of 25 (32%) males had the same finding. Among patients with instability, mean maximum cystometric capacity was 333 ± 96 ml and compliance was 28±34 ml/cmH₂O. Differences regarding cystometric capacity and compliance between the two groups were significant (p= 0.0003 and 0.0005 respectively, using 2-tail *t* test, with equal variance).

Only 29 patients underwent voiding cystometry. Mean detrusor opening pressure was 55.3±25 cm H₂O, mean detrusor pressure at maximum flow and maximum detrusor pressure, were 53.5±21 and 78.9±35 cmH₂O respectively. Pressure flow analysis, using Schafer's nomogram, revealed a mean overall Schafer grade of 1.2, in males it was 1.4 and in females 0.9. Only 3 male patients had Schafer's grade 3 or 4. Their age was 23, 35 and 21 respectively. The remaining pressure flow studies were having non-obstructed pattern (19 patients) or equivocal obstruction (7 patients). Table 1 displays mean values of different parameters recorded during voiding cystometry as well as Schafer grade.

	Mean $P_{det\ op}$ cmH ₂ O	Mean $P_{det\ Qmax}$ cmH ₂ O	Mean Max p_{det} cmH ₂ O	Mean Q_{max} ml/s	Schafer Grade
Overall (N= 29)	55±25	53.5±21	78±35	18.6±6	1.2
Females	34±12	38±11	59±21.6	20±7.2	0.9
Males	60.5±23	55.5±21	79±35.9	18.5±6.3	1.5
P value*	0.0009	0.004	0.008	0.65	0.08

* Significance at $p < 0.05$, using 2-tail t test.

Conclusions

urodynamic studies in adults with persistent nocturnal enuresis disclose a higher incidence of instability than in an age-matched group of volunteers. Instability has its consequences on both filling properties of the bladder as well as on symptoms. Bladder capacity in those adults is normal, so is voiding pressure. It might be prudent to conclude that filling cystometry is justified in an adult with persistent nocturnal enuresis and diurnal symptoms.

References

- 1 R. Scand. J. Urol. Nephrol.(suppl), 202: 36, 1999.
- 2 Norgaard, J. P., Djurhuus, J.C., Watanabe, H. et al: Experience and current status of research into the pathophysiology of nocturnal enuresis. Br. J. Urol., 79: 825, 1997.