Evaluation of and Treatment for Monosymptomatic Enuresis: A Standardization Document From the International Children's Continence Society

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Purpose: We provide updated, clinically useful recommendations for treating children with monosymptomatic nocturnal enuresis.

Materials and Methods: Evidence was gathered from the literature and experience was gathered from the authors with priority given to evidence when present. The draft document was circulated among all members of the International Children's Continence Society as well as other relevant expert associations before completion.

Results: Available evidence suggests that children with monosymptomatic nocturnal enuresis could primarily be treated by a primary care physician or an adequately educated nurse. The mainstays of primary evaluation are a proper history and a voiding chart. The mainstays of primary therapy are bladder advice, the enuresis alarm and/or desmopressin. Therapy resistant cases should be handled by a specialist doctor. Among the recommended second line therapies are anticholinergics and in select cases imipramine.

Conclusions: Enuresis in a child older than 5 years is not a trivial condition, and needs proper evaluation and treatment. This requires time but usually does not demand costly or invasive procedures.

Key Words: urinary bladder; nocturnal enuresis; reference standards; societies, medical; child

Abbreviations and Acronyms

ICCS = International Children's Continence Society
MNE = monosymptomatic NE
NE = nocturnal enuresis
NMNE = nonmonosymptomatic NE
UTI = urinary tract infection

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SCOPE OF THE DOCUMENT

THIS document represents the ICCS recommendations on treatment in children with MNE. By MNE we mean "enuresis in children without any other lower urinary tract symptoms," in accordance with ICCS terminology.[1] Although the focus of the article is children, we believe that it will also be useful when dealing with adults.

The document is intended to be clinically useful for primary, secondary and tertiary care. We present not only the optimal, recommended strategy but also the minimal requirements for the health care provider with limited resources and time.

The purpose is not to provide detailed discussions on pathogenesis or epidemiology. Likewise management of NMNE is outside the scope of this document. However, there is a large gray zone between MNE and NMNE. After thorough evaluation many chil-

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dren assumed to have MNE are found to have NMNE. Furthermore, the pathogenesis overlaps between the 2 conditions. Thus, evaluation of and treatment for the 2 entities have many similarities.

The text is not a formal systematic review of evidence-based medicine. Evidence in this field of knowledge is quite weak. However, we present what evidence there is.

The document was produced on the initiative of the ICCS Board. Before finalization a draft document was circulated among all ICCS members as well as experts from other relevant associations, including the American Association of Pediatrics Section on Urology and the European Society for Pediatric Urology.

BACKGROUND

Although views are conflicting regarding how many children with enuresis are truly monosymptomatic, we suspect that they represent less than half of all bed wetting children. Modern research has established 3 major pathogenetic mechanisms as crucial, including nocturnal polyuria, detrusor overactivity and an increased arousal threshold. The Aarhus group found in the 1980s that many children with enuresis lack the normal nocturnal increase in vasopressin secretion and, thus, have exaggerated urine production.[2] Later research showed that, although nocturnal polyuria is common in children with MNE,[3] not all of them have polyuria[4] and not all patients with polyuria have vasopressin deficiency.[5] In some bed wetting children nocturnal detrusor overactivity has been detected.[6] Since neither the polyuria mechanism nor nocturnal detrusor overactivity explains why the children do not awaken, sleep mechanisms must also be involved.[7]

Comorbid conditions often have a central role in the pathogenesis and potential therapy resistance of enuresis. Paramount among these conditions are constipation[8] and neuropsychiatric disorders, such as attention deficit hyperactivity disorder.[9] These 2 conditions may decrease the chance of successful therapy.

Although enuresis tends to disappear spontaneously as the child grows, a significant proportion of patients continues to wet the beds into adolescence or adulthood.[10] The impact of enuresis on affected children is mainly psychological and may be severe.[11] This makes treatment not only justified but mandatory.

PRIMARY EVALUATION

General

The first health care professional to meet the child with enuresis may be a general practitioner, a pediatrician, a pediatric urologist, a urotherapist or a school nurse. They are all adequate and what is important is their experience and commitment. A minimal primary evaluation should make the health care provider able to 1) identify the child who has enuresis secondary to underlying medical conditions, 2) identify the child who for other reasons needs further examinations, 3) identify the child with relevant comorbid conditions and 4) start adequate first line treatment after excluding points 1 to 3.

History

A good case history is the cornerstone of the evaluation. No amount of expensive examinations can substitute for a poor history. Much of the history should focus on voiding habits. We must ask specifically about symptoms such as urgency, holding maneuvers (standing on tiptoe, pressing the heel into the perineum etc), interrupted micturition, a weak stream and the need to use abdominal pressure to pass urine. Current or previous daytime incontinence must be asked about and, if present, described. How often does it happen and in which situations? We also must know how often the child voids during normal days but for this the completion of a frequency-volume chart, as described, provides much more reliable data than family recollection. The family should also be asked whether the child has had any UTIs.

Concomitant daytime bladder symptoms means that the child has NMNE, which strictly speaking is not dealt with in this document. It is important to distinguish bed wetters who only have urgency, decreased/increased voiding frequency or moderate intermittent daytime incontinence from those who void with a weak stream, must use abdominal pressure or have continuous incontinence. The latter children must be sent to a specialized center without delay.

We obviously must know more about bed wetting as such. How often does it occur, every night or only sporadically? Has the child always been wetting? Does the child also have nocturia? Frequent bed wetting is a poor prognostic sign[12] but nocturia indicates that the child is not extremely difficult to arouse from sleep. Somatic and psychological comorbid conditions are more common in children who were previously dry than in those with primary MNE.[13,14]

Since bladder and bowel function are closely interrelated, questions on bowel habits should also be posed. If concomitant constipation is not treated first, it may be difficult to get the child dry. If the child has bowel movements every second day or less often, or stool consistency is usually hard, constipation is probable.[15] Fecal incontinence is also com-