CLINICAL PRACTICE

South African guidelines for the management of nocturnal enuresis

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On 2 November 2002, the Enuresis Academy of South Africa had its second round table discussion to establish proper guidelines for the management of enuresis in South Africa. These guidelines, endorsed by the Continence Association of South Africa (CASA), are accompanied by a short overview of enuresis.

Definition

The definition of enuresis as used by Butler[1] (quoted in *Incontinence*[2]) is that of an involuntary voiding of urine during sleep, with a severity of at least three times per week, in children over the age of 5 years in the absence of congenital or acquired defects of the central nervous system.

Different opinions exist concerning the appropriate age to use in the above definition. At age 5 most children will have developed voluntary control of micturition. It is also known that boys develop this voluntary control and nighttime dryness later than girls.[3] It was therefore decided that 5 years might be too young and the consensus was that in South Africa we would treat children from the age of 6 years. Concerning children younger than 6 years, parents should be educated and reassured and the child reassessed at a later age.

The definition addresses severity, and states that for enuresis to be considered problematic, it should occur at least three times per week. For the adolescent or young adult with nocturnal enuresis once a month is unacceptable and should be addressed.

Enuresis is common among children throughout the world, yet it remains both underresearched and underreported — the Cinderella of childhood problems. Agroup of medical specialists, under the auspices of the Continence Association of South African (CASA), hoped to address this state of affairs at a weekend retreat at Erinvale Gold Estate in Somerset West in the Western Cape, when they established the South African Enuresis Academy. The aims of the meeting were to create greater awareness of the condition among both medical practitioners and the public, to draw up concurrent guidelines on the management and treatment of enuresis, to establish a representative body to uphold ethical standards, and to eliminate the stigma attached to this widespread condition.

To achieve these aims, information needs to be consolidated and educational material made available. It was further suggested that a telephone helpline be established, that a national registry for professionals be created, to include physiotherapists and psychologists, and that a national network of support groups be established. Amedia outreach programme is also planned, as is interaction with appropriate government agencies.

The Academy met in November 2002 to draw up these treatment guidelines.

Understanding nocturnal enuresis

Although it remains difficult to understand the pathophysiology of nocturnal enuresis, Butler and Holland[4] have developed a conceptual model. In this model, they use three different aspects of the pathophysiology of nocturnal enuresis to explain to the child and parents where the problem lies. The model also helps the treating physician to make better choices as far as treatment is concerned.

Bladder instability

Watanaba *et al.*[5] discovered that 30 - 32% of a sample of children with enuresis had uninhibited bladder contractions. These children had smaller functional bladder capacities than children with enuresis who did not have bladder instability. Yeung *et al.*[6] found that unstable bladder contractions occurred after the children had fallen asleep, resulting in enuresis in 44% of treatment failures.

It is important always to keep in mind the possibility of bladder instability in the clinical work-up of patients with enuresis. The following signs are indicative of bladder instability:[5]

- frequent daytime voiding — more than seven times per day
- a sense of urgency
- unsuccessful voiding manoeuvres
- low or variable functional bladder capacity
- low voided volumes
- multiple wetting at night
- variability in the size of the wet patch
- waking after wetting.

Lack of vasopressin release

Arginine vasopressin (AVP) is produced in the hypothalamus and rises during sleep, which results in a reduction in the volume of urine produced. Individuals with nocturnal enuresis have been found to have a lack of the circadian rhythm of AVP, resulting in high nocturnal urine production, which exceeds bladder capacity.[7]

Clinical signs of low AVP might include:

- wetting soon after going to sleep
- consistently large wet patches
- episodes of enuresis in the first one-third of the night.

Lack of arousal from sleep

Lack of arousal from sleep only becomes a problem when there is bladder instability and/or a lack of vasopressin release. It has been proved that wetting occurs during all stages of sleep and that sleep patterns in children with enuresis are no different from those of other children.[8] Therefore the issue is the child's inability to wake when the bladder reaches its maximum capacity.

The degree of arousability can be determined clinically by means of a series of questions:

- frequency of waking from sleep and voiding in the toilet
- the occurrence of waking with a reluctance to leave the bed to void
- the ability to wake to internal (i.e. pain or discomfort) or external (i.e. noise) signals.

This model, used during history taking and the examination, helps the treating physician to decide on the correct treatment modality.

Treatment

The management of nocturnal enuresis depends on:

- the child's motivation to participate in the management programme
- exclusion of confounding psychosocial factors
- providing information and instruction on daily habits, underlining the importance of regular fluid intake and voiding and relaxed routine at bedtime
- regular review of intervention.

Enuresis alarm

Enuresis alarm therapy remains the most effective way to treat enuresis.[1] Intervention with the alarm is associated with a nine times lower likelihood of relapse than antidiuretic therapy. Meta-analysis has shown that alarm therapy has a 43% lasting cure rate.[9] Alarm therapy should be reserved for the child aged 7 years or older and should be implemented only in a well-motivated family. Response is slow and may take up to 8 weeks to occur.

The alarm alerts and sensitises the child to respond quickly to a full bladder and to convert the signal from urination to one of inhibition of urination and waking. An additional interesting finding is that nocturnal bladder capacity increases in patients responding to this form of treatment.

Desmospressin (DDAVP)

The response rate is high in patients with polyuria, but so is the relapse rate. With the structured withdrawal programme developed by Butler,[4] the relapse rate can be improved. It is important that patients are well informed as to the correct use of desmopressin and that fluid intake should be minimised an hour before administration.

Anticholinergic drugs

In patients with signs of bladder overactivity at night, anticholinergic drugs should be considered.

Tricyclic antidepressants

Because of the potential lethal side-effects of imipramine, these drugs cannot be recommended for treatment of this non-lethal disorder.[10]

Additional management modalities

After carefully taking a history the treating physician should be able to confirm that there are only nighttime episodes of bedwetting. Daytime symptoms such as urgency and other signs and symptoms of urinary tract infections should be excluded. Often parents are not able to answer all these questions and will only be able to do so after they have kept a diary. It is often only after the parents have kept a diary that they realise how little fluid their child takes during the day. Nighttime urine output can be measured by weighing diapers and measuring the first morning voided volume.

A thorough medical and neurological examination should confirm normal anatomy and normal psychomotor development, paying special attention to the genital area and back.

Additional and invasive diagnostic procedures are only indicated in those patients where other pathology is suspected.

Conclusion

Depending on the age of the child a treatment plan should be designed to fit the patient and his/her family. Very young patients (younger than 6 years) should be managed conservatively by explaining the condition to them; they should be motivated to take fluid more regularly and to void regularly. A positive attitude contributes to the success rate. Difficulty in waking is present in most of these patients, either

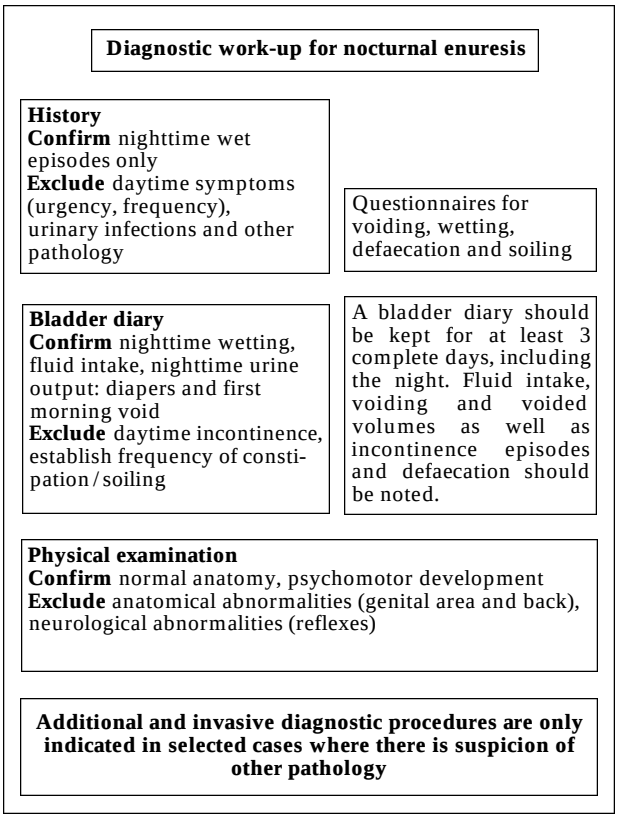

Fig. 1. Schematic work-up in patients presenting with nighttime wetting only.[2]

alone or in combination with either polyuria or bladder overactivity. Therefore alarm therapy is, in the motivated patient from 7 years onward, the treatment of choice.

The patient with an increased nighttime urine production can be treated with DDAVPeither alone or in combination with alarm therapy, and the child with signs of bladder overactivity should be treated with an anticholinergic drug such as oxybutynin.

Nocturnal enuresis can only be managed successfully by a caring and sensitive physician who spends time with the child and his / her family. Choosing the correct treatment option for the particular child will improve the response rate.

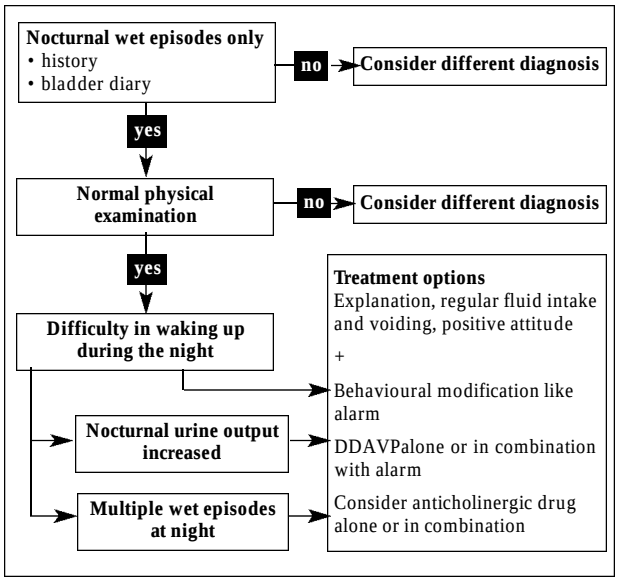

Fig. 2. Pragmatic approach to diagnosis and treatment of nocturnal enuresis.[2]

The contact number for the Enuresis Helpline is 083 289 6440.

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