

MANAGEMENT TECHNIQUES IN CHILDHOOD ENURESIS

Enuresis (bedwetting) is defined as a discreet amount of wetting occurring at night in a child aged five years or over. It is a common problem in school-age children. The Three Systems Model is a simple clinical tool for identifying the reasons for bedwetting and enables healthcare workers to administer the correct treatment for the child incorporating a holistic approach.

Dr Chinnaiah Yemula is a Consultant Community Paediatrician at Bedfordshire Primary Care Trust

Bedwetting, a common problem in school-age children, can be an extremely distressing experience for the child and family. It is important for the healthcare worker to explore the reasons for the child's bedwetting problems and advise an appropriate treatment. This article outlines the basics of bedwetting and the various treatments that can be used in the primary care setting.

WHAT IS ENURESIS?

Enuresis is defined as any discreet amount of wetting at night in a child aged five years or over (International Children's Continence Society [ICCS], 2006). It is considered to be primary enuresis if the child has been previously dry for less than six months and secondary if the child has been dry for a period of at least six months.

Monosymptomatic enuresis is defined as enuresis without

daytime bladder symptoms and all other cases are described as non-monosymptomatic enuresis. Continuous incontinence is a constant leakage of urine that can occur due to congenital malformations.

Is it a common problem?

A large-scale epidemiological study reported that 16.1% of children aged five years, 3.1% of children aged nine years and 2.2% of adolescents experience primary enuresis (Yeung et al, 2004). Bedwetting can occur in both boys and girls, but is more common in boys at a younger age.

'There is a strong genetic predisposition for bedwetting, with an increased risk if one or both parents have a history of the problem.'

Does bedwetting run in families?

There is a strong genetic predisposition for bedwetting, with an increased risk if one or both parents have a history of the problem. The risk is 40% if one parent has been a bedwetter and 75% if both parents experienced the condition (Bakwin, 1971).

THE THREE SYSTEMS MODEL FOR PRIMARY ENURESIS

The Three Systems Model (Figure 1) is widely used by healthcare workers in the UK. It is based on the idea that bedwetting can arise because of an inability to produce the urine-concentrating hormone vasopressin and/or bladder over-activity combined with a lack of sensation telling the child to wake and visit the toilet (Butler and Holland, 2000).

In cases of primary enuresis, the Three Systems Model is a simple clinical tool that can be used by healthcare workers to identify the reasons why a child is wetting the bed and help choose the most appropriate treatment. The three elements of this assessment system are outlined below.

Low levels of vasopressin

Some children, who wet the bed, tend to have low levels of a hormone called vasopressin (an antidiuretic hormone) at night. As a result, the kidneys produce large amount of urine, which exceeds the bladder capacity resulting in bedwetting. Children will tend to wet the bed within a few hours of going to sleep and

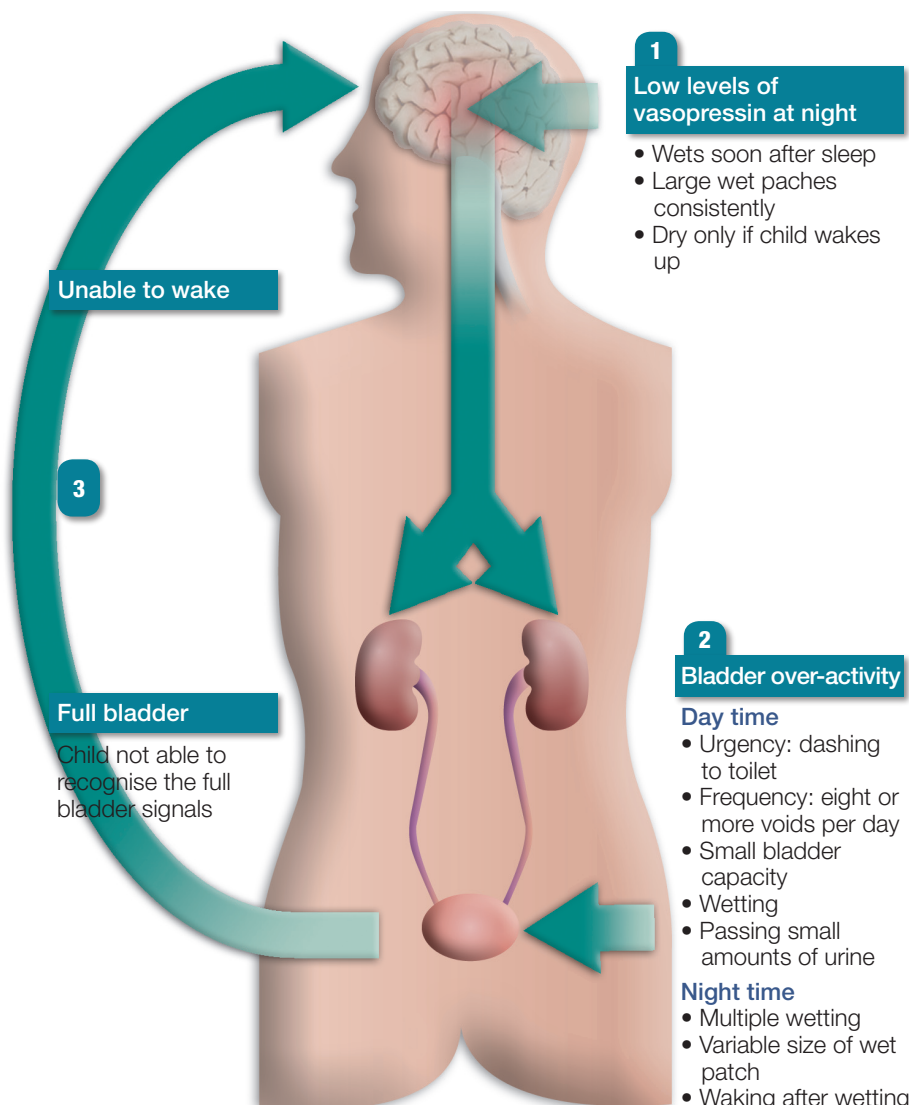


Figure 1: The Three Systems Model.

produce consistently large wet patches in the bed.

Overactive bladder

Other children will have an overactive bladder and experience a sense of urgency. They may have a combination of the following features:

- ▶▶ Go to the toilet frequently (eight or more times) during the day
- ▶▶ Frequently need to dash to the toilet
- ▶▶ Wet during the day
- ▶▶ Pass small amounts of urine
- ▶▶ Have multiple wet patches at night, which vary in size

- ▶▶ Wake up after wetting the bed
- ▶▶ Have small bladder capacity.

Sleep arousal

Many children also have sleep arousal problems. This means they have difficulty recognising the signals that indicate a full bladder and are unable to wake up at night to go the toilet.

WHAT CAUSES SECONDARY ENURESIS?

In secondary enuresis the child will have been dry for at least six months. A child who has been dry previously can also start wetting the bed again. It

is important to exclude causes such as constipation, urinary tract infection, bullying at school and any stressful factors at home.

HOW DOES BEDWETTING AFFECT THE CHILD AND THE FAMILY?

Bedwetting can cause significant distress to the child and may lead to emotional problems, social isolation and poor self-esteem (Butler, 1994). Children may feel sad, ashamed and embarrassed about their condition. They fear being discovered by others and tend to avoid sleepovers and school trips. Most parents/carers are understanding and supportive, although some may become stressed and intolerant towards their child (Butler et al, 1986).

WHAT DOES A SIMPLE ASSESSMENT CONSIST OF?

The Three Systems Model involves taking a simple history of the child's bedwetting and daytime symptoms (such as wetting during the day), any sense of urgency (dashing to the toilet) and any worries the child and the family may have. It is important to check the child's drinking and bowel habits and also exclude constipation and urinary tract infection.

HOW SHOULD PRIMARY ENURESIS BE MANAGED?

Ideally the management of bedwetting needs to include the following strategies.

Family education

Educating the child and family about bedwetting and emphasising the fact that child is not guilty is vital. The parents/



Figure 2: A bed mat alarm.

carers should also avoid blaming and shaming the child.

The UK charity Education and Resources for Improving Childhood Continence (ERIC) is a good resource for literature for children, parents/carers and healthcare workers.

Self-help measures

Children who wet the bed need to be encouraged with self-help measures and provided with regular praise for their efforts. Some parents/carers find it helpful to use sticker/reward charts for younger children, in order to keep them interested and sustain their motivation. It is helpful to keep a diary of dry nights to check the child's progress. Parents/carers need to take the following measures in order to help the child with bedwetting:

- ▶▶ Encourage the child to have at least 6–7 drinks, spread throughout the day

- ▶▶ Ensure the child goes to the toilet at regular intervals, six times a day
- ▶▶ Try cutting out fizzy drinks as well as tea, coffee, hot chocolate and blackcurrant
- ▶▶ Encourage the child to come off 'pull-ups' as soon as possible if they are still wearing them after the age of five years
- ▶▶ Ensure there is adequate bed protection (i.e. protective covers on mattresses, duvets and pillowcases)
- ▶▶ Ensure easy access to the toilet (a bucket in the child's bedroom might help)
- ▶▶ At bedtime, ask the child to urinate twice to empty the bladder completely
- ▶▶ Keep a light on in the corridor in case the child is afraid of the dark and fearful of going to the toilet
- ▶▶ Ensure the child has a high-fibre diet, including fruit and vegetables to avoid constipation

- ▶▶ Encourage the child to stay dry and provide plenty of praise for his or her efforts.

Enuresis alarms

An enuresis alarm is a battery-operated device that is often used to treat nighttime bedwetting in children and adolescents as it helps them to recognise the physical signals which indicate that their bladder is full. As soon as they start wetting, the alarm makes a loud noise/vibration that wakes them up. There are two types of alarms – a bed mat and a body-worn alarm (*Figures 2 and 3*).

Alarms can be used in children over the age of 6–7 years. The success of alarm therapy depends on the commitment and willingness of both the child and the parents/carers and it is important that healthcare workers provide clear advice and regular support to the family.

Approximately two-thirds of children achieve success while using alarms and they are likely to succeed under the following conditions:

- ▶▶ There can be no parental intolerance

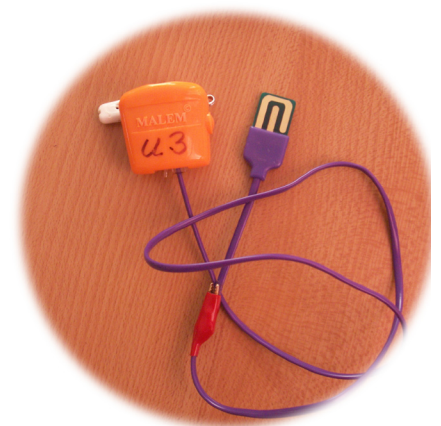


Figure 3: A body-worn alarm.

- ▶▶ The child should be willing to participate
- ▶▶ The child should have a normal bladder capacity
- ▶▶ The child should have no daytime wetting or behavioural problems.

The effects of using alarm are usually seen within about three weeks of commencing treatment. The child will gradually start having smaller and less frequent wet patches although it may take many weeks before the child becomes completely dry at night. Once the child is dry for two consecutive weeks, the alarm can be switched off.

There can be a high drop out rate from alarm treatment due to lack of response, false alarms or parental intolerance. However, alarm treatment can be effectively delivered from enuresis clinics with regular support from healthcare workers.

Desmopressin

Desmopressin is a synthetic analogue of vasopressin, an antidiuretic hormone. Its effect lasts up to eight hours, therefore, it is taken at bedtime in order to reduce urine production. It is available as a tablet and a melt form, which melts under the tongue within seconds without the need for water.

Desmopressin can be administered to children over the age of five and can be continued for long periods if necessary. The safety and efficacy of long-term desmopressin therapy has been supported by an international multi-centre study (Snajderova et al, 1999). However, desmopressin

therapy should be halted for at least one week every three months to check if the child still needs the treatment.

About seven out of 10 children achieve dry nights after taking desmopressin and success is more likely if the child has a history of wetting soon after going to bed and consistently produces large wet patches.

Side-effects are generally mild, but include abdominal pain, headache and nausea. It is important that the child does not drink large amounts of fluid from an hour before taking the medication and up until he or she wakes up in the morning. This is to prevent the potential risk of water intoxication, low sodium levels and seizures.

CONCLUSION

In a primary care setting, children with bedwetting problems need a simple assessment using the Three Systems Model, following which an appropriate treatment can be discussed and agreed with the child and family.

It is important that healthcare workers dealing with children have an understanding of this condition and a working knowledge of the optimum management techniques. **CE**

REFERENCES

- Bakwin H (1971) Enuresis in twins. *Am J Dis Child* **121**: 222–5
- Butler RJ, Brewin CR, Forsythe WI (1986) Maternal attributions and tolerance for nocturnal enuresis *Behaviour Res Ther* **24**: 307–12

Key Points

- ▶▶ **Bedwetting, a common problem in school-age children, can be an extremely distressing experience for the child and family.**
- ▶▶ **It is important for the healthcare worker to explore the reasons for the child's bedwetting problems and advise an appropriate treatment.**
- ▶▶ **Enuresis is defined as any discreet amount of wetting at night in a child aged five years or over.**
- ▶▶ **In a primary care setting, children with bedwetting problems need a simple assessment using the Three Systems Model, following which an appropriate treatment can be discussed and agreed with the child and family.**

Butler RJ (1994) *Nocturnal Enuresis: The Child's Experience*. Butterworth Heinman, Oxford

Butler RJ, Holland P (2000) The Three Systems: a conceptual way of understanding nocturnal enuresis. *Scan J Urol Nephrol* **34**: 270–77

ICCS (2006) The standardisation of terminology of lower urinary tract function in children and adolescents – report from the standardisation committee of the International Children's Continence Society. *J Urol* **176**: 314–24

Šnajderová M, Lehotská V, Kocnarová N et al (1999) Long-term treatment with Desmopressin in children with primary nocturnal enuresis. An international multi-centre study. *Cas Lek Cesk* **138(14)**: 429–35

Yeung CK, Sihoe JD, Sit FK, Bower W, Sreedhar B, Lau J (2004) Characteristics of primary nocturnal enuresis in adults: an epidemiological study. *Br J Urol Int* **97(5)**: 1069–73