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Nocturnal Enuresis (Bedwetting)

What is Nocturnal Enuresis?

Nocturnal enuresis (bedwetting) is defined as involuntary urination while asleep after the age at which bladder control usually occurs. Most children outgrow bedwetting. This survey of 1,265 children in New Zealand shows that the rate of nocturnal enuresis decreases with age.

- At age 2, 93 out of 100 (93%) children have nocturnal enuresis.
- At age 3, 43 out of 100 (43%) children have nocturnal enuresis
- At age 4, 20 out of 100 (20%) children have nocturnal enuresis
- At age 5, 16 out of 100 (16%) children have nocturnal enuresis
- At age 6, 13 out of 100 (13%) children have nocturnal enuresis
- At age 7, 10 out of 100 (10%) children have nocturnal enuresis
- At age 8, 7 out of 100 (7%) children have nocturnal enuresis

What causes Nocturnal Enuresis?

Bedwetting may be caused by having lower than normal levels of the hormone vasopressin at night. Vasopressin is an important hormone that regulates and balances the amount of water in your blood. This hormone recycles water from the urine back into the bloodstream. At night, it is normal to have a higher level of this hormone, so that our body makes less urine during sleep. Many bedwetters (although not all of them) do not produce the normal high level of vasopressin at night and therefore make more urine than normal at night. In addition, they don't seem to get the message that the bladder is full and as a result have accidents when asleep.

When should I be concerned?

Bedwetting alone is usually not concerning. It can indicate a problem if the child has any of the following conditions in addition to the bedwetting:

- urinary infection
- painful urination
- stream abnormality
- daytime incontinence
- bowel problems
- anatomic disorders

If the bedwetting occurs with any of the above conditions, it may be a symptom of another serious problem. We rule out other problems by taking a medical history, doing a physical examination, and inspecting the urine. In some situations your doctor will order an ultrasound or other imaging tests.

What can I do to help my child?

Because most bedwetters become dry without treatment, **patience and understanding** are the best things to offer young children who wet the bed. After the age of 6-7, the social cost of bedwetting begins to rise. An alarm system is a good place to start. (See www.pottymd.com and www.bedwettingstore.com)

Fluid restriction in the evening will help some children. Waking children at night may solve the problem in some instances but may create tired parents. Behavioral modification and bladder training have little benefit.

Are there medications that can help?

DDAVP is currently the drug of choice for bed wetting. This is a manmade version of vasopressin, an important regulatory hormone that our bodies produce (see section "What causes Nocturnal Enuresis"). DDAVP is dispensed

either in as a nasal spray or tablet form. Before using DDAVP, we take a history, determine the degree of bedwetting (how many wet nights per week), and try to understand if the child has a fairly normal fluid intake. We want to know if there is a history of cystic fibrosis, seizures, or headaches.

Other medications used to treat bedwetting include:

- Imipramine (an anti-depressant known as Tofranil) helps in a little more than 50% of bedwetters. Mood changes and nightmares are adverse side effects to watch for with Imipramine.
- Oxybutynin chloride (Ditropan, a bladder anti-spasmodic) is effective in occasional children. It may cause facial flushing, irritability, and even heat exhaustion.

In summer months children need to be encouraged to drink plenty of water when they are active.

What are the guidelines for giving my child DDAVP?

- Give DDAVP at bedtime
  - Stop eating and drinking about 1.5-2 hours before bedtime.
- Do not give your child DDAVP on a day where they had:
  - an unusually large fluid intake
  - symptoms of vomiting, diarrhea or gastrointestinal illness
- Do not increase the dose without discussion with a member of the pediatric urology service
- Stop giving your child DDAVP if:
  - you have any questions or concerns
  - if the child had any of the following signs or symptoms:
    - headaches
    - chills
    - dizziness

  - nausea
  - abdominal (belly) pain
  - seizures

- Keep track of the number of accidents per week
- Every 6 months stop giving your child DDAVP to see if they still need it.
- Schedule an annual checkup with the pediatric urologist for your child, as long as they take DDAVP

Reference: Fergusson DM et al. Nocturnal enuresis and behavioral problems in adolescence: a 15-year longitudinal study. Pediatrics, 94: 662-668, 1994.

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