All about desmopressin for healthcare professionals

Bladder & Bowel UK

When should I consider suggesting desmopressin?

Desmopressin is a synthetic analogue of arginine vasopressin and is therefore useful in treatment of enuresis caused by nocturnal polyuria. It is recommended by NICE as a first-line treatment, particularly where rapid onset or short-term improvement is a priority, or where an alarm is considered inappropriate or undesirable to the child, young person and/or family.

Desmopressin can be used in children and young people from five years of age who are able to comply with fluid restriction for an hour prior to its administration and for eight hours after. It is easy to administer and may be used in combination with other treatments.

Is desmopressin appropriate to use in children?

Desmopressin is an effective treatment for enuresis and should be used in the liquid, melt or tablet formulations. The nasal spray should not be used for enuresis. Incidence of side-effects is low. They include abdominal pain, headache, nausea and vomiting. Hyponatremia is the most serious potential side-effect but is usually associated with excess fluid intake in the hour prior to taking desmopressin or the eight hours after taking it.

Isolated cases of allergic reactions and emotional disorders, including aggression in children, have been reported.

Any side effects should be reported directly via the Yellow Card Scheme at www.mhra.gov.uk/yellowcard.

Side effects for Desmomelt® and Desmotab® should also be reported to Ferring Pharmaceuticals Ltd: Tel 0800 111 4126 or Email: medical.uk@ferring.com.

Side effects for Demovo® should be reported to Alturix Limited at safety@alturix.com and Tel 01908 038 083.

Are there any circumstances where desmopressin should not be used for enuresis?

Desmopressin should not be used in children or young people who have cardiovascular disease, cardiac insufficiency, who are taking diuretics, have hypertension or who have a history of hyponatremia. It should not be used in young people who have polydipsia due to alcohol dependence or who have psychogenic polydipsia.

Desmopressin should be used with caution with those who have asthma, reduced renal function, cystic fibrosis, or epilepsy.

The British National Formulary for Children provides a list of possible drug interactions for desmopressin. All the drugs listed may increase the risk of hyponatremia when given in combination with desmopressin. The symptoms of hyponatremia include headache, nausea, vomiting, confusion, sleepiness, restlessness, muscle weakness and in severe cases convulsions.

Desmopressin is on the prohibited list for elite athletes by the World Anti-Doping Agency.

Are there any specific instructions that I should give families whose children are taking desmopressin?

It is important to inform children and their families that the child must not drink for an hour prior to taking desmopressin and for eight hours after taking it.

This is because excessive fluid intake increases the risk of hyponatremia. They should be advised about the symptoms of hyponatremia. Desmopressin should not be given if the child or young person is unwell, particularly if they have diarrhoea, vomiting or a raised temperature.

Should I suggest an alarm before recommending desmopressin?

Treatment advice should be based on the outcome of assessment. Assessment should indicate the most likely cause of enuresis and should also consider the most acceptable treatment for the child or young person and their family.

Desmopressin is indicated for treatment of nocturnal enuresis. Desmopressin may be tried if it is important to the child or young person and family to have rapid progress, short-term dryness, or if an alarm is considered inappropriate or undesirable for any reason.

Desmopressin may be used in combination with other treatments including an alarm.

How is desmopressin available?

Desmopressin is available as a tablet, melt or liquid (oral solution). Each formulation has a different dosing profile, due to differences in bioavailability.

Tablets for treating enuresis come as 200mcg, melts (Desmomelt®) are available as 120mcg or 240mcg, and the liquid (Demovo®) contains 360mcg in 1ml.

Which formulation of desmopressin should I recommend?

The main clinical consideration when recommending a formulation of desmopressin is individual circumstances and preference. Many children need a significant amount of water to swallow a tablet, so this may not be the best option for them as fluid intake should be restricted for an hour before and eight hours after taking desmopressin.

Melts are designed specifically for children and are often more acceptable to them. DesmoMelt® dissolves in the mouth and is absorbed through the buccal membrane. As it bypasses the stomach, it is not influenced by the presence of food, so melts may be more effective in children who have a meal shortly before bedtime.

Desmopressin liquid, Demovo®, is flavourless and the standard dose is 0.5ml or 1ml (180mcg or 360mcg). Therefore, the quantity required is tolerable to many children and most are used to taking liquid medicines, so it may be a viable and cost-effective alternative. As it must be swallowed it may be affected by food in the stomach.

Children should be advised to try to avoid food intake in the last hour before bed due to the impact on absorption of desmopressin tablets or liquid, but also due to protein and salt increasing diuresis.

If the formulation of desmopressin used is ineffective, it should not be assumed that the other formulations will also be ineffective – a trial should be considered.

What dose of desmopressin should I recommend?

The usual starting dose of desmopressin is 200mcg for tablets, 120mcg for melts and 180mcg for liquid. The dose can be doubled after a week if the wetting continues. Families need to be made aware that Desmomelt® is available in both 120mcg and 240mcg.

The dosage of Desmopressin is standard regardless of the size or age of the child. The dose required depends on the response. If a child is dry on 200mcg tablet, 120mcg melt or 180mcg liquid the dose does not need to be increased. If the child is wet two or more nights a week on one of these the dose can be doubled. The normal maximum dose is 400mcg for the tablets (two tablets), 240mcg for the melt (one or two melts depending on the strength prescribed and/or dispensed) and 360mcg for the liquid (1ml).

Using more than the recommended maximum dose increases the risk of hyponatremia, as the child may still have some of the active ingredient in their body the following morning. If the child continues to have partial or no response on the maximum dose an alternative formulation, different treatment or combination treatment should be considered.

Is there other information that I need to be aware of?

Desmopressin tablets should not be crushed. Children who cannot swallow tablets whole with minimal water should not be prescribed the tablets. DesmoMelt® may be used if it has broken into two pieces. If it is in more than two pieces, it should be discarded. Desmopressin liquid (Demovo®) is supplied with a 1ml syringe and instructions for how to draw it up.

Families should always be advised to read the information supplied with the medication.

When should desmopressin be given?

Desmopressin should be given up to an hour before bedtime, but at least an hour after the child has their last drink. As desmopressin can take up to an hour from administration to reach maximum concentrating capacity in the kidneys, giving it an hour before bedtime might increase response. However, stopping drinks up to two hours before bedtime may not be practical in younger children.

Will desmopressin work for everyone?

Desmopressin treats nocturnal enuresis caused by nocturnal polyuria. However, there are different causes for enuresis and it is not always easy to be certain of the cause(s) in an individual.

Desmopressin will not treat constipation, overactive bladder, or problems with sleep arousal. Furthermore, children with nocturnal polyuria may continue to have wet nights if the production of urine during sleeping hours continues to exceed bladder capacity, even with desmopressin.

Some children may not respond as well to desmopressin as others and a change of formulation may be beneficial for some. Studies have identified that a small bladder capacity or nocturnal bladder overactivity may be contributary factors to continued wetting with desmopressin.

If the child continues to have wet nights on desmopressin they may require a different treatment or desmopressin in combination with other treatment(s).

How long should the child take desmopressin for?

Desmopressin should be taken for an initial period of 12 weeks, following which children should have one week without it. The child and family should monitor their wet nights. If the child is wet for two or more nights in the week without desmopressin, they may recommence it for a further period of 12 weeks. They should recommence the desmopressin at the same dose as they were taking prior to the break. Being wet in the week without desmopressin is not an indication for increasing the dose.

Suppose the child is dry for six or more nights in their week without desmopressin. In that case, they should not restart it, but should continue to monitor wet and dry nights and only consider restarting desmopressin if the wetting increases beyond two nights a week. The family should be advised to try to work out possible causes for any wet nights, so that these can be addressed, if possible.

It is appropriate for desmopressin to be taken in the long term, so long as the child adheres to the advice about fluid restriction and continues to have one week without desmopressin every 12 weeks, to monitor progress and to see if they continue to need it. If the child is dry on nights where they take desmopressin and is wet without it, they may continue to take it.

How or when should desmopressin be stopped?

If the child is dry in the week without desmopressin it should not be restarted. If the child has been on treatment for at least six months and has been dry on some nights where they have not taken desmopressin, or if the child and family request it, consideration could be given to weaning the dose. Giving the child and family the choice of how/when this is done often produces the best results.

Weaning can be done in different ways. Some children chose to reduce the dose: they take 200mcg tablet if they have been on 400mcg previously, 120mcg melt if they have been on 240mcg previously, or 180mcg liquid if they have previously taken 360mcg; others may choose to take desmopressin for six nights for two weeks, then for five nights for two weeks and continue to reduce in this way. Some may choose to take it on alternate nights, or to throw a dice and take desmopressin if the dice shows numbers 1 – 3, and not take it if the dice shows numbers 4 – 6. The important thing is for the child to monitor their response, so they can clearly see whether they are dry on nights when they do not take desmopressin.

Is there any advice I should give to improve the likelihood of the child having dry nights?

Good daytime fluid intake should be encouraged. The child and family should understand the impact of poor fluid intake on bladder function. There is no evidence that desmopressin cannot be used in the presence of poor daytime fluid intake, so long as the child is able to adhere to advice not to drink in the hour before taking desmopressin and eight hours after taking it.

Any constipation or daytime urinary incontinence should be appropriately treated as these conditions may negatively impact on bedwetting.

Ensure that the child and family understand the condition and possible causes for it, as well as treatment options. Giving them choice improves adherence and hence treatment outcomes.

Further information

There is more information about bedwetting available on the Bladder & Bowel UK website.

Information for professionals and for families is available on the Bladder & Bowel UK website

There is also information for families at www.stopbedwetting.org

Bladder & Bowel UK offer bespoke and national training, including symposia and lunchtime learning. Contact us for more information about bespoke training.

Bladder & Bowel UK provide a confidential helpline to professionals, those who have bladder and bowel conditions and their families via the web form or Telephone 0161 214 4591.

For further information about Bladder & Bowel UK services and resources visit our website at www.bbuk.org.uk.

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