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COCHRANE SYSTEMATIC REVIEW OF DESMOPRESSIN FOR NOCTURNAL ENURESIS IN CHILDREN

Aims of study

Nocturnal enuresis (night-time bedwetting) is common in childhood, and can cause stigma, stress and inconvenience. We have assessed the effects of desmopressin on nocturnal enuresis in children, and compared desmopressin with other interventions.

Methods

Randomised trials of desmopressin for nocturnal enuresis in children were identified from a wide variety of sources, including MEDLINE, EMBASE, AMED; ASSIA; BIDS; BIOSIS Previews (1985-1996); CINAHL; DHSS Data; PsycLIT and SIGLE. Organisations, manufacturers, researchers and health professionals concerned with enuresis were contacted for further information. Trials were eligible for inclusion if: children were randomised to receive desmopressin compared with placebo, other drugs or other conservative interventions for nocturnal bedwetting; participants with organic causes for their bedwetting were excluded; and baseline assessments of the level of bedwetting were reported. Trials focused solely on daytime wetting were excluded.

Two reviewers independently assessed methodology and quality to identify eligible trials, and extracted data[1].

When appropriate, meta-analysis was undertaken, using the methods of the Cochrane Collaboration[2]. Categorical outcomes were presented as relative risks, and continuous variables as weighted mean differences. A fixed effects model was used for calculation of 95% confidence intervals.

Results

Twenty one randomised trials of desmopressin, involving 948 children, met the inclusion criteria. The quality of many of the trials was poor. Desmopressin was compared with a tricyclic drug in two trials, and with alarms in one. Desmopressin was effective in reducing bedwetting in a variety of doses and forms. Each dose of desmopressin reduced bedwetting by at least one night per

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week during treatment (eg 20µg: 1.56 fewer wet nights per week, 95% CI -1.94 to -1.19). Participants on desmopressin were 4.6 times more likely to achieve 14 consecutive dry nights (95% CI 1.38 to 15.02) compared with placebo. However, there was no difference after treatment was finished. There was no apparent dose-related effect of desmopressin, but the evidence was limited. Data which compared oral and nasal administration were too few to be conclusive.

Desmopressin and imipramine (a tricyclic drug) were equally effective in one small trial. Amitriptyline (another tricyclic) was not consistently better than desmopressin either alone or when used as a supplement. However, tricyclics were associated with more adverse effects (83/480, 17.3/100 patients) compared with desmopressin (41/579, 7.1/100 patients)[1].

In a single trial, desmopressin was initially superior to using an alarm in reducing the number of wet nights per week: WMD -1.7 (95% CI: -2.96 to -0.45), but this result was not sustained; after three months of treatment, patients using the alarm had 1.4 fewer wet nights per week than with desmopressin: (95% CI: 0.14 to 2.65). Participants receiving the alarm intervention were also nine times less likely to relapse than those given desmopressin: RR 9.2 (95% CI: 1.28 to 65.9). Combining alarm and drug therapy was found to be superior to alarm treatment alone. The addition of desmopressin to an alarm schedule resulted in one less wet night per week: (95% CI: -1.55 to -0.45).

Conclusions

Desmopressin rapidly reduced the number of wet nights per week, but there was some evidence that this was not sustained after treatment stopped. Comparison with alternative treatments suggested that desmopressin and tricyclics had similar clinical effects, but that alarms produced more sustained benefits. However, based on the available evidence, these conclusions can only be tentative.

There was some evidence of minor side effects of desmopressin in the included trials, such as nasal irritation and nose bleeds. However, the risk of water intoxication associated with over-drinking before bedtime has been reported. Patients and their families need to be warned of potential adverse effects and advised on how to avoid them.

Treatment with desmopressin is considerably more expensive than with tricyclic drugs, but is associated with fewer side-effects and less risk of fatal overdose; alarm interventions are intermediate in cost and are more disruptive in the short term, but do not have the same risk of side-effects.

References

1. Lister-Sharp D, O'Meara S, Bradley M, Sheldon TA. A Systematic Review of the Effectiveness of Interventions for Managing Childhood Nocturnal Enuresis (1997). NHS Centre for Reviews and Dissemination, University of York, CRD Report 11.

2. Mulrow CD, Oxman AD (eds.). Analysing and Presenting Results. Cochrane Collaboration Handbook [updated September 1997]; Section 8. In: The Cochrane Library [database on disk and CDROM]. The Cochrane Collaboration. Oxford: Update Software; 1997, issue 4.