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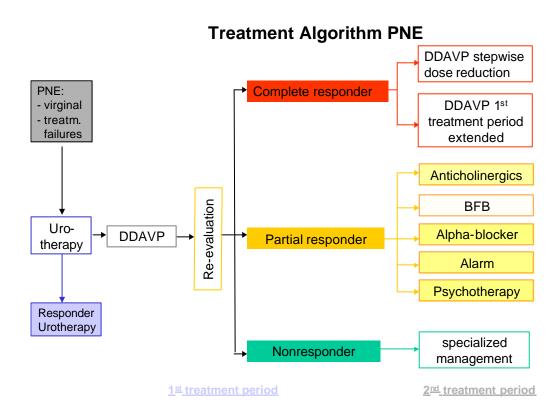
# A SUGGESTED TREATMENT ALGORITHM IN NOCTURNAL ENURESIS WITH EMPHASIS ON PARTIAL RESPONDERS

### Aims of Study

DDAVP and enuresis alarm are the mainstays of treatment in nocturnal enuresis (PNE) (1). However, these monotherapeutic strategies (2) often have only partial success in PNE. Therefore this retrospective analysis evaluated whether a combination treatment could improve outcomes.

#### Methods

PNE children were investigated according to ICI-standards (3) and submitted to a therapeutic strategy as depicted in figure 1.



Outcome was the elimination or reduction of wet nights. The minimum follow-up of the patients was 3 months up to 6 years.

As preliminary therapy the urotherapy (4) (timed drinking and modifying of micturition habits) was applied for two weeks . Non-responders then were assigned to DDAVP treatment (0.2 mg/night) for additional two weeks. The dosage was increased up to 0.4 mg/night for two weeks, if the children still were wetting.

After 4 weeks of DDAVP the patients were grouped according to their treatment response in this first treatment period.

For complete responders a stepwise dose interval reduction scheme keeping the dosage constant (every 2<sup>nd</sup> day, twice a week, once a week) was performed for two-weeks periods. In cases of relapse the patients were re-assigned to the prior treatment step. In cases of successful dose reduction treatment was stopped.

In partial responders, with reduced bedwetting frequency, all patients were re-evaluated and adjuvant treatments were added according to individual symptomatology while continuing the 0.4 mg DDAVP treatment (2<sup>nd</sup> treatment period):

- 1. Anticholinergics (propiverine 0.4 mg/kg b.w.) were applied (5) when nocturnal diuretic volume still exceeded the individual functional bladder capacity (6).
- 2. Biofeedback was utilized in children with dysfunctional voiding (7).
- 3. Alpha-blocker (alfuzosin 2.5 mg bid or qd) were given to children with suspected functional bladder outflow obstruction (8).
- 4. Enuresis alarm was applied in children with small amounts of bedwetting who did not wake up (9).
- 5. Psychotherapy was performed in children with behavioral disorders.

Non-responders were referred to specialized management.

#### Results

259 children were enrolled (1996 - 2002). Demographic characteristics: 92 girls, 167 boys, age range 5 - 17 years. 42 children stopped bedwetting (complete responders) after urotherapy. 136 children had a complete response to DDAVP treatment. 3 patients showed no response and were assigned to specialized management. The 78 partial responders were either assigned to anticholinergics (n=41), biofeedback (n=9), alpha-blocker (n=7), alarm (n=2) or psychotherapy (n=2). 17 patients were satisfied with their partial response and therefore had no further treatment. This combination strategy resulted in another 49 complete responders, 9 patients showed further improvement, in 3 cases bedwetting was not further improved .

# **Conclusions**

The need for preliminary urotherapy is evident. The described DDAVP monotherapy strategy is more effective than the usual DDAVP treatment module. However, applying adjuvant treatment modules improves the complete response rate up to 88%. Furthermore, the combination strategy in partial responders increases the overall efficacy rates. Non-responders (1.2%) will be referred to specialized management, but many partial responders will gain improvement sufficient to refrain from invasive procedures.

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