Dextroamphetamine treatment in children with hypothalamic obesity

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BACKGROUND
Hypothalamic obesity (HO) in children may have severe consequences. Lifestyle intervention is mostly insufficient. Amphetamines are known for their stimulant effect on resting energy expenditure (REE) and suppressing appetite. We present our experiences of dextroamphetamine treatment in children with HO.

PATIENTS AND METHODS
Retrospective analysis at two endocrine pediatric clinics
• Patients with progressive, therapy-resistant acquired, genetic, or congenital HO were treated
• Measurements at start and during treatment: anthropometrics, REE, (hyperphagic) behavior, and side effects

BASELINE CHARACTERISTICS
• 19 patients started dextroamphetamine treatment (mean age of 12.3 years ± 4.0)
• Of 17 patients, BMI SDS could be evaluated
• Mean treatment duration: 19.5 months ± 12.9

EFFECTS ON BMI AND REE
See table and figure

EFFECTS ON BEHAVIOR
13 patients (68.4% of n = 19) reported improvement of hyperphagia, energy level, or behavior.

ADVERSE EFFECTS
Two patients developed hypertension during treatment.

5 children had stopped treatment at last moment of FU, because of no effect on weight or adverse side effects

CONCLUSION
In children with HO, adding dextroamphetamine treatment to supportive lifestyle interventions, may lower or stabilize BMI SDS, reduce hyperphagia, and improve behavior and activity level

FUTURE STUDIES
International multicenter studies are needed to increase sample size, with randomized placebo control design

<table>
<thead>
<tr>
<th>Total Group</th>
<th>Responders</th>
<th>Non-responders</th>
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<tbody>
<tr>
<td>Cause of HO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n = 12 acquired</td>
<td>n = 10 acquired</td>
<td>n = 2 acquired</td>
</tr>
<tr>
<td>n = 4 genetic</td>
<td>n = 3 genetic</td>
<td>n = 1 genetic</td>
</tr>
<tr>
<td>n = 1 congenital</td>
<td>n = 1 congenital</td>
<td></td>
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<tr>
<td>ΔBMI SDS at last moment FU</td>
<td>-0.40 ± 0.86</td>
<td>-0.60 ± 0.82</td>
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<tr>
<td>BMI SDS increase per month (1 year before treatment)</td>
<td>+0.02 ± 0.07</td>
<td>+0.02 ± 0.08</td>
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<tr>
<td>BMI SDS increase per month (during 1st year of treatment)</td>
<td>-0.04 ± 0.06 (p = 0.009)</td>
<td>-0.06 ± 0.06 (p = 0.004)</td>
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<tr>
<td>ΔREE, % predicted</td>
<td>+10.9 ± 14.1 (n = 13)</td>
<td>+8.9 ± 14.2 (n = 11)</td>
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