Effect of anthelmintic drugs on growth in children

<table>
<thead>
<tr>
<th>QUESTION</th>
<th>What is the effect on growth of different anthelmintic drugs for treating soil-transmitted intestinal worms in children?</th>
</tr>
</thead>
</table>
| CONTEXT | Soil-transmitted intestinal worms
It is estimated that more than a quarter of the world population, especially in the tropical and subtropical areas, are infected with soil-transmitted worms. It is a major public health issue because of its effect among children on growth, school performance, and physical activity. Recently, however, some studies have suggested that these consequences may be related to poverty rather than to worm infection.
Some of the drugs used to treat worm infection include albendazole, mebendazol, pyrantel pamoate, piperazine, levamisole, tetracholerethylene and ivermectin. There are several deworming campaigns around the globe that target either individuals who have been diagnosed with this condition, populations at higher risk, or entire communities regardless of infection status. |
| INTERVENTION | Anthelmintic drugs
Change in weight after a single dose: A single dose of anthelmintic drugs was significantly but inconsistently associated with an increase in weight. Low Quality of Evidence.
Change in height after a single dose: A single dose of anthelmintic drugs was not significantly associated with an increase in height. Low Quality of Evidence.
Change in weight after multiple doses: Multiple doses of anthelmintic drugs were not significantly associated with an increase in weight. Low Quality of Evidence.
Change in height after multiple doses: Multiple doses of anthelmintic drugs were not significantly associated with an increase in height. Low Quality of Evidence.
Side effects: There is no evidence of significant side effects associated with the use of anthelmintic drugs. Low Quality of Evidence.
## Summary of the Evidence

### Benefits

A Cochrane systematic review ¹ (date of search: 2007) compared treatment with deworming drugs to placebo or no treatment in children aged 16 years or less. It found a significant increase in weight after a single dose treatment, although data is inconsistent (9 RCT, mean difference between interventions 0.34, 95%CI 0.05,0.64, heterogeneity= 95%), but no significant increase in height (9 RCT, mean difference between interventions 0.04, 95%CI -0.16,0.23, heterogeneity= 71%). Follow-up periods for the trials that used a single dose ranged from one to 11 months.

After multiple doses, there was no statistically significant increase in weight (6 RCT, mean difference between interventions 0.05, 95%CI -0.24,0.33, heterogeneity= 86%), or in height (6 RCT, mean difference between interventions -0.02, 95%CI -0.15,0.12, heterogeneity= 78%). Follow-up periods for trials that used multiple doses ranged from six months to 2.5 years.

### Risks

Only one trial evaluated adverse events related to deworming treatment or control group. There were no serious adverse events in the treatment group (albendazole: 46 subjects) or placebo (43 subjects).

### Applicability

Evidence coming from this review refers to studies performed in groups at increased risk (known as targeted treatment strategy). It provides indirect evidence on the effectiveness of an specific drug for the treatment of an specific worm species.

### Commentaries

Quality of the RTCs included in this review was poor. Results were inconsistent and had high heterogeneity. Further research is warranted to evaluate the effects on growth and side effects of deworming treatments.

### Costs

No studies on cost-effectiveness have been identified in the current literature.

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<table>
<thead>
<tr>
<th>Number of Studies (N)</th>
<th>Outcome</th>
<th>Comparison</th>
<th>Type of Evidence</th>
<th>Quality</th>
<th>Consistency</th>
<th>Direct Evidence</th>
<th>Size of Effect</th>
<th>GRADE</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 (566)</td>
<td>Change in weight after a single dose</td>
<td>Anthelmintic drugs vs. Placebo or no treatment</td>
<td>4</td>
<td>-1</td>
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<td>4 (422)</td>
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<td>-1</td>
<td>-1</td>
<td>-1</td>
<td>0</td>
<td>Very low</td>
<td>Limitations in design, heterogeneity, indirectness</td>
</tr>
<tr>
<td>1 (89)</td>
<td>Serious adverse events</td>
<td>Anthelmintic drugs vs. Placebo or no treatment</td>
<td>4</td>
<td>-1</td>
<td>0</td>
<td>-1</td>
<td>-2</td>
<td>Very low</td>
<td>Limitations in design, indirectness, no events.</td>
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Type of evidence: 4 = RCT; 2 = Observational studies; 1 = Non-analytic studies / Expert opinion