Smectite for acute diarrhoea in children

Zui-Shen Yen and Mei-Shu Lai

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The use of absorbable sutures in children has the benefit of avoiding the emotional and physical trauma and cost of suture removal. The only prospective randomised controlled trial showed no difference between absorbable sutures and non-absorbable sutures in the rate of complications as well as cosmesis. However, too many patients were lost to long term follow up.

► CLINICAL BOTTOM LINE
Absorbable sutures appear to be as good as, and show a trend towards benefit, in paediatric laceration.


Smectite for acute diarrhoea in children

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Abstract
A short cut review was carried out to establish whether smectite was a useful therapy in acute diarrhoea. A total of 21 papers were found of which five presented the best evidence to answer the clinical question. The author, date and country of publication, patient group studied, study type, relevant outcomes, results, and study weaknesses of these best papers are tabulated. The clinical bottom line is that oral smectite appears to be effective at shortening the duration of the diarrhoea in children with acute diarrhoea rehydrated with oral rehydration solution.

Three part question
In [children with acute diarrhoea] is [the use of smectite with oral rehydration solution better than oral rehydration solution alone] at [shortening the duration of diarrhoea]?

Clinical scenario
A 12 month old boy with acute diarrhoea is brought to the emergency department by his parents. He tolerates oral rehydration solution well but his parents still worry very much about his frequent loose stools. You wonder if the use of smectite would provide any additional benefit.

Search strategy
Medline 1966–August 2005, Embase 1966–August 2005: {[(diactahedral* OR smect*) AND (‘diarrhoea’/exp OR ‘gastroenteritis’/exp OR diarrh*mp)]} LIMIT to human AND English. Embase: {((diactahedral* OR smect*) AND (‘diarrhoea’/exp OR ‘gastroenteritis’/exp OR diarrh*))} LIMIT to human AND English; Cochrane Library: [smectite]

<table>
<thead>
<tr>
<th>Table 3</th>
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</thead>
<tbody>
<tr>
<td><strong>Author, date, and country</strong></td>
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<tr>
<td>Korounis H et al, 2004, USA</td>
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**Table 4**

<table>
<thead>
<tr>
<th>Author, date, and country</th>
<th>Patient group</th>
<th>Study type (level of evidence)</th>
<th>Outcomes</th>
<th>Key results</th>
<th>Study weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vivatvakin B et al, 1992, Thailand</td>
<td>62 patients (age 1–24 months) with acute diarrhoea randomised to DS-ORS or ORS</td>
<td>Prospective randomised controlled trial</td>
<td>Duration of diarrhoea (hours)</td>
<td>Significantly shorter duration of diarrhoea in the DS-ORS group (43.3 (25.1) vs 84.7 (48.3), p=0.005)</td>
<td>Small number of patients; unclear randomisation; no blinding</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Total number of diarrhoeal stools</td>
<td>Significant smaller number of total diarrhoeal stools in the DS-ORS group (11.3 (0.48) vs 13.8 (0.45), p=0.001)</td>
<td>Small number of patients</td>
</tr>
<tr>
<td>Madkour AA et al, 1993, Egypt</td>
<td>90 boys (age 3–24 months) with acute diarrhoea randomised to DS-ORS or ORS</td>
<td>Prospective randomised controlled trial</td>
<td>Duration of diarrhoea (hours)</td>
<td>Significantly shorter duration of diarrhoea in the DS-ORS group (54.1 (2.35) vs 72.9 (9.18), p&lt;0.001)</td>
<td>Small number of patients; unclear randomisation; no blinding</td>
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<tr>
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<td></td>
<td>Total number of diarrhoeal stools</td>
<td>Significant smaller number of total diarrhoeal stools in the DS-ORS group (11.3 (0.48) vs 13.8 (0.45), p=0.001)</td>
<td>Small number of patients; unclear randomisation; no blinding</td>
</tr>
<tr>
<td>Lexomboon U et al, 1994, Thailand</td>
<td>66 patients (age 1–24 months) with acute diarrhoea randomised to DS-ORS or ORS</td>
<td>Prospective randomised controlled trial</td>
<td>Cure rate at 72 hours</td>
<td>Significantly higher cure rate in the DS-ORS group at 72 hours after the treatment (71% vs 34%, p&lt;0.01)</td>
<td>Small number of patients; unclear randomisation; no blinding</td>
</tr>
<tr>
<td>Guarino A et al, 2001, Italy</td>
<td>804 patients (age 3 months–5 years) with acute diarrhoea randomised to DS-ORS or ORS</td>
<td></td>
<td>Duration of diarrhoea (hours)</td>
<td>Significantly shorter duration of diarrhoea in the DS-ORS group (96.21 (21) vs 119.23 (23), p&lt;0.001)</td>
<td>Incomparable baseline data; no intention to treat analysis; no blinding</td>
</tr>
<tr>
<td>Narkvičiene I et al, 2002, Lithuania</td>
<td>54 patients (age 6–48 months) with acute diarrhoea randomised to DS-ORS or ORS</td>
<td>Prospective randomised controlled trial</td>
<td>Duration of diarrhoea (hours)</td>
<td>Significantly shorter duration of diarrhoea in the DS-ORS group (42.3 (24.7) vs 61.8 (33.9), p=0.019)</td>
<td>Small number of patients; randomisation by birthday; no blinding</td>
</tr>
</tbody>
</table>

DS, diactahedral smectite; ORS, oral rehydration solution.
Search outcome
Medline and Embase: 21 papers were found, of which five were considered to be original research of high quality (randomised controlled trials) and relevant to the topic of interest (table 4). No additional citations were found in the Cochrane Library.

Comment(s)
Dioctahedral smectite is a natural adsorbent clay formed of fine sheets of aluminomagnesium silicate. Smectite has been found to adsorb viruses, bacteria, and bacterial toxins, thus protecting the intestinal mucosa. Most of the clinical studies in table 4 were relatively small and only one was obviously blinded. However, they consistently showed the efficacy of smectite in reducing the duration of diarrhoea. In children with acute diarrhoea rehydrated with oral rehydration solution, smectite may shorten the duration of diarrhoea by about 20–50%. No significant side effects were observed. Considering the safety, tolerance and antidiarrhoeal activity of smectite, it is worth a try in the treatment of acute diarrhoea in children.

► CLINICAL BOTTOM LINE
Oral smectite appears to be effective at shortening the duration of diarrhoea in children with acute diarrhoea rehydrated with oral rehydration solution.


