



Smectite for acute diarrhoea in children

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Table 3

Author, date, and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weakness
Karounis H <i>et al</i> , 2004, USA	Paediatric patients with traumatic lacerations	Prospective, randomised, controlled trial	Short term cosmesis (as measured with percentage of patients with optimal wound score on 6-point scale) Wound dehiscence Cosmesis at 4 months (measured by plastic surgeon on 100 mm VAS) Cosmesis at 4 months as measured by optimal score on 6-point scale Surgical scar revision recommendation	Better for absorbable but not statistically significant (63% v 49%); RR 0.73, 95% CI 0.45 to 1.17 11% for non-absorbable v 2% for absorbable, p=0.07 79 mm for absorbable v 66 for non-absorbable 36% for absorbable v 28% for non absorbable; RR 0.88, 95% CI 0.62 to 1.26 3 patients were recommended for revision: 2 were in the absorbable group; all declined revision	34% of patients were lost to long term follow up.

Comment(s)

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.

Karounis H, Gouin S, Eisman H, *et al*. A randomized, controlled trial comparing long-term cosmetic outcomes of traumatic pediatric lacerations repaired with absorbable plain gut versus nonabsorbable nylon sutures *Acad Emerg Med* 2004;11:730-5.

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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: {(diocathedral\$.mp OR smect\$.mp) AND (exp diarrhea OR exp gastroenteritis OR diarrh\$.mp)} LIMIT to human AND English. Embase: {(diactahedral* OR smect*) AND ('diarrhea'/exp OR 'gastroenteritis'/exp OR diarrh*)} LIMIT to human AND English; *Cochrane Library*: [smectite]

Table 4

Author, date, and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Vivatakin B <i>et al</i> , 1992, Thailand	62 patients (age 1–24 months) with acute diarrhoea randomised to DS+ORS or ORS	Prospective randomised controlled trial	Duration of diarrhoea (hours)	Significantly shorter duration of diarrhoea in the DS+ORS group (43.3 (25.1) v 84.7 (48.5), p=0.005)	Small number of patients; unclear randomisation; no blinding
Madkour AA <i>et al</i> , 1993, Egypt	90 boys (age 3–24 months) with acute diarrhoea randomised to DS+ORS or ORS	Prospective randomised controlled trial	Duration of diarrhoea (hours) Total number of diarrhoeal stools	Significantly shorter duration of diarrhoea in the DS+ORS group (54.1 (2.35) v 72.9 (1.98), p<0.001) Significant smaller number of total diarrhoeal stools in the DS+ORS group (11.3 (0.48) v 13.8 (0.45), p<0.001)	Small number of patients
Lexomboon U <i>et al</i> , 1994, Thailand	66 patients (age 1–24 months) with acute diarrhoea randomised to DS+ORS or ORS	Prospective randomised controlled trial	Cure rate at 72 hours	Significantly higher cure rate in the DS+ORS group at 72 hours after the treatment (71% v 34%, p<0.01)	Small number of patients; unclear randomisation; no blinding
Guarino A <i>et al</i> , 2001, Italy	804 patients (age 3 months–5 years) with acute diarrhoea randomised to DS+ORS or ORS	Prospective randomised controlled trial	Duration of diarrhoea (hours)	Significantly shorter duration of diarrhoea in the DS+ORS group (96 (21) v 119 (23), p<0.001)	Incomparable baseline data; no intention to treat analysis; no blinding
Narkeviciute I <i>et al</i> , 2002, Lithuania	54 patients (age 6–48 months) with acute diarrhoea randomised to DS+ORS or ORS	Prospective randomised controlled trial	Duration of diarrhoea (hours)	Significantly shorter duration of diarrhoea in the DS+ORS group (42.3 (24.7) v 61.8 (33.9), p=0.019)	Small number of patients; randomisation by birthday; no blinding

DS, dioctahedral 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.

Vivatvakin B, Jongpipatvanich S, Harikul S, *et al.* Control study of oral rehydration solution (ORS)/ORS + dioctahedral smectite in hospitalized Thai infants with acute secretory diarrhea. *Southeast Asian J Trop Med Public Health* 1992;**23**:414–19.

Madkour AA, Madina EM, el-Azzouni OE, *et al.* Smectite in acute diarrhea in children: a double-blind placebo-controlled clinical trial. *J Pediatr Gastroenterol Nutr* 1993;**17**:176–81.

Lexomboon U, Harikul S, Lortholary O. Control randomized study of rehydration/rehydration with dioctahedral smectite in ambulatory Thai infants with acute diarrhea. *Southeast Asian J Trop Med Public Health* 1994;**25**:157–62.

Guarino A, Bisceglia M, Castellucci G, *et al.* Smectite in the treatment of acute diarrhea: a nationwide randomized controlled study of the Italian Society of Pediatric Gastroenterology and Hepatology (SIGEP). *J Pediatr Gastroenterol Nutr* 2001;**32**:71–5.

Narkeviciute I, Rudzeviciene O, Leviniene G, *et al.* Management of Lithuanian children's acute diarrhoea with Gastrolit solution and dioctahedral smectite. *Eur J Gastroenterol Hepatol* 2002;**14**:419–24.