Enema vs. Polyethylene Glycol for Successful Fecal Disimpaction in Children

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 Constipation is a problem in childhood with an estimated prevalence of 3% worldwide and starts in the first year of life in 17-40% of children. 1 It is usually associated with infrequent and/or painful defecation, fecal incontinence and abdominal pain. Constipation leads to encopresis , enuresis, recurrent UTI, prolapse, intussusception , rectal ulceration, and protein losing enteropathy. Other non-physical complications include social stigma and anxiety . However the problem worsens when there is a fecal impaction. If the child is repeatedly holding his stool, the rectum and the lower colon stretch, muscle tone is reduced, and the child will begin to retain stool. As stool retention time increases, so does water absorption. The stool becomes hard and may even reach the point of impaction. Approximately 30-75% of children with long standing functional constipation have abdominal or rectal fecal impaction and 90% of those patients result in severe fecal impaction. 2 A fecal impaction is defined as a hard mass in the lower abdomen identified by physical exam or dilated rectum filled with a large amount of stool on rectal exam or excessive stool in the distal colon on abdominal radiography. It is important to assess for fecal impaction because disimpaction should be done prior to start maintenance therapy. If it does not occur, oral laxative treatment may result in an increase of fecal incontinence due to overflow diarrhea. Enema is commonly given for fecal disimpaction as first line treatment, however there have been studies that have shown oral polyethylene glycol (PEG) to be 95% successful. 2

 This leads to my PICO question, "In children with fecal impaction, is enema or polyethylene glycol more successful at disimpaction? " A literature search using the PubMed-MeSH database was performed with search terms: (enema AND (miralax OR oral laxative OR polyethylene glycol 3350)) AND (fecal disimpaction OR constipation) with limits of English articles only. Forward and backward citation was also used to perform the literature search.

 Bekkali et al (2005) is a prospective randomized clinical trial that showed PEG to have an increased risk of unsuccessful disimpaction over enemas2. Even with intent to treat analysis, the best case scenario to account for all the drop outs show there can be a risk of failure to disimpact. The study was valid, but it was limited in a small sample size. Miller et al (2012) is a prospective randomized clinical trial that also showed PEG to have an increased risk of unsuccessful disimpaction3. In the best case scenario, absolute risk reduction of 11.5% but the confidence interval crosses 0, meaning that there can be a risk of an successful disimpaction. The study was valid, but its limitations include small sample size, Large number lost to follow-up, selection bias and the primary "objective" measure is actually subjective to caregivers. Guest et al (2007) is a retrospective chart review, finding PEG successful disimpaction over enemas, with an absolute risk reduction of 24%4. The study has poor validity due to being a retrospective study, which introduces confounding factors, selection bias, recall bias and research bias. The limitations include no randomization, no PEG dosing was given in the study, no definition of “successful disimpaction,” and the study assumed that disease severity was the same for all treatment groups and the treatment was based on center’s preferred treatment. However, this is the only study of with a large sample size.

 Based on the three studies, enemas are still the preferred treatment for fecal disimpaction since there is a increased risk of an unsuccessful disimpaction when using polyethylene glycol. More research does need to be done on this topic because there were only small sample size in valid studies. In the large sample group like the Guest study, there was hope when PEG was more successful. Since it was a retrospective study, it wasn’t great validity. So it would be interesting to see a prospective study with a large sample size involving multicenters. If enemas were an issue to parents, oral PEG can be trialed since from the studies of Miller and Guest, there are chances of a successful disimpaction. However enemas are still first line treatment at fecal disimpaction.

Works Cited

1. Tabbers, MM et al. Evaluation and Treatment of Functional Constipation in Infants and Children : Evidence Based Recommendation From ESPGHAN and NASPGHAN. *J Pediatr Gastroenterol Nutr.* 2014;58(2):258–274.

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