Use of transcutaneous electrical current to overcome chronic constipation in children

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Chronic constipation can be due to abnormal anal sphincter responses or defects in transit through the colon. Using multichannel colonic manometry we have shown that slow colonic transit in children can occur without anorectal defects and is associated with reduced antegrade propagating contractions in the proximal colon and lack of the postprandial increase in activity. Transcutaneous electrical stimulation (TES) used to treat bladder defects produces diarrhea as a side effect, suggesting it could be used a treatment for constipation. This study reports our preliminary experience using TES to stimulate the proximal colon in children with slow transit constipation. 

Methods: TES using an interferential current (TESIC) was applied over the transverse colon of 16 children (aged 5-19) with slow colonic transit. 2 surface electrodes were placed anterior & 2 posterior at the level of the umbilicus with current crossed and applied 3 times/wk for 4 weeks. 

Results: 13/16 increased defecation into normal range. Children with chronic constipation suffer overflow soiling, and this a major factor in poor quality of life. 15/16 stopped soiling. The effects lasted more than 3 months post-stimulation. Two patients had colonic manometry before and 6 months after electrical stimulation. Both showed normalized defecation and increased frequency of antegrade propagating contractions into the normal range. 

Conclusions: TES over the transverse colon using interferential current can increase defecation and stop soiling in children with chronic constipation due to poor colonic motility. TES increased propagating contractions in the proximal colon into the normal range and the effects last months after the stimulation. Further studies are needed to determine optimal parameters for stimulation.