

## DAILY TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION AT HOME IN A PATIENT WITH DOWN SYNDROME

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### Case report

A four year old boy with Down syndrome born from non-consanguineous parents presented for exclusion of Hirschsprung's disease because of signs severe constipation since several months. The first meconium passage was uncertain. Stools were hard and infrequent (every 7 to 10 days).

Additional investigations included anal manometry without recto-anal inhibitory reflex, leading to rectal biopsy that was normal (excluding Hirschsprung disease). Pellet studies showed a significant delayed colon transit time (139,2h) with pellets spread throughout the colon, suggesting a slow transit constipation. Treatment with a high dose laxative (macrogol 40 g), led to continuous leakage of stool.

He was unable to attend school because of the combination Down's syndrome and constant need of diaper change.

By the age of five years old a trial with daily transcutaneous electrical nerve stimulation (TENS) at home was started. The portable device for TENS consists of a pulse generator with amplifier and electrodes. A low frequency of 2Hz is applied with maximum tolerable intensity, defined as below pain threshold, for 2 hours every day. Two surface electrodes are put at the level of the sacral root S3.

Two months after daily TENS at home the boy made daily stools in the diaper with a continuing treatment with 7g macrogol. Another two months later he made daily stools without any laxatives, most of the times on the toilet.

### Discussion

Transcutaneous electrical nerve stimulation is often used in urinary incontinence, but more rarely used in constipation or fecal incontinence. The exact mechanism of action is still unclear, leaving it impossible to predict who would react in a positive way to the treatment.

Some studies using TENS show promising results on slow transit constipation in children (Southwell BR et al, Australia). TENS is less expensive and minimal invasive compared to sacral nerve stimulation, antegrade colon enema or double-barreled stoma. In this boy TENS was given in a complete different way than the earlier mentioned studies (different settings with low frequency and different electrode use) still leading to complete normalization of stool.

Placebo effect, most efficient modalities of TENS and long term results still have to be studied further.