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OUTCOMES OF SACRAL NEUROMODULATION IN CHILDREN WITH DYSFUNCTIONAL ELIMINATION SYNDROME

Hypothesis / aims of study
Sacral neuromodulation delivered by the InterStim System has been used to treat urge incontinence, urgency-frequency, and nonobstructive urinary retention for the past 15 years in the adult population. Safety and efficacy have not yet been established for patients under the age of 18. There is limited data regarding the success of sacral neuromodulation for treatment of dysfunctional elimination syndrome (DES) in pediatric patients. The aim of this study is to report our initial experience using sacral neuromodulation via implanted pulse generator (InterStim) as a treatment for children with symptoms of dysfunctional elimination syndrome refractory to conservative therapy

Study design, materials and methods
Between January 2001 and February 2016, 32 pediatric patients with refractory DES underwent a two-staged operative procedure. The first stage was a test stimulation phase with temporary percutaneous lead placement near the sacral nerves at S3. The device was kept in place for a week and symptoms were evaluated with a detailed voiding diary. If the symptoms improved by at least 50%, the InterStim device was permanently implanted.
All patients underwent pre-operative baseline assessment with detailed voiding diary and urodynamic evaluation. They were initially managed conservatively with behavior therapy and pharmacotherapy, which ultimately failed.

Results
Among the 32 patients, 100% reported overall improvement in voiding symptoms with the Stage 1 test stimulation phase, so all underwent Stage 2 permanent implantation of InterStim II Neurostimulator Model 3058. Complete resolution of preoperative symptoms was report by 69% (n=22), 25% (n=8) reported improvement in atleast 1 preoperative symptom, and 6% (n=2) reported no improvement in any symptoms. The mean age was 11.2 years (range 3-17) and 53% (n=17) were male. The mean duration of follow up was 31.2 months (range 0.3 - 90 months). The reoperation rate was 22% (n=7). Three patients required battery changes. Two devices were replaced due to malfunction. One device was removed due to resolution of symptoms and one was removed due to lack of efficacy.There were no reported infections, significant pain, or erosion.

Interpretation of results
All the patients who underwent the one week trial period reported overall improvement in voiding symptoms and proceeded with the permanent implant of the device. As such, one may consider elimination of the trial period to reduce the number of general anesthetics. The InterStim device was effective for 94% (n=30) with minimal adverse effects reported. Reoperations were mainly required for battery depletion and device malfunction.

Concluding message
Sacral neuromodulation is a safe and effective option for treatment of dysfunctional elimination syndrome in children who have failed to respond to alternate therapies. Further studies are needed to better define which select population is most likely to benefit.

Disclosures
Funding: None **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** Institutional Review Board **Helsinki:** Yes **Informed Consent:** Yes