

SACRAL NEUROMODULATION FOR THE TREATMENT OF VOIDING DYSFUNCTION IN ADULTS WITH CEREBRAL PALSY

Hypothesis / aims of study

Cerebral palsy is a constellation of neurologic syndromes that present with a wide spectrum of motor dysfunction. Although the disorder is classically described as not progressive, the clinical manifestations of cerebral palsy can change as a patient undergoes neurologic maturation. With advances in medical care more children born with cerebral palsy are living into adulthood. Approximately one-third of patients with cerebral palsy have dysfunctional voiding. Although research into the diagnosis and treatment of voiding dysfunction in children with cerebral palsy exists, little has been published regarding the treatment of adults with this condition. In this study we describe the presenting symptoms and urodynamic observations in adult patients with cerebral palsy, and describe the treatment methods employed. Specifically, the use of sacral neuromodulation therapy for the treatment of voiding dysfunction in adult patients with cerebral palsy is reviewed.

Study design, materials and methods

Between 2001 and 2005, six patients with cerebral palsy (three females and three males) underwent surgical treatment for voiding dysfunction at our institution. Mean age at time of treatment was 38.3 years (range 22-60). All six patients were diagnosed with neurogenic bladder. The patients all had urodynamic studies that demonstrated pelvic floor dyssynergia and high pressure voiding with incontinence. All patients failed to respond to anticholinergic medications, as well as two patients failed to respond to alpha blockade. Three patients were treated with sacral nerve stimulators, two patients were treated with intubated suprapubic drainage, and one patient was treated with urinary diversion (ileal conduit). The patients who chose suprapubic tube drainage did so because of limited mobility and limited caregiver support. The patient that chose ileal conduit did so due to the fact that she was almost completely immobile and had no caregiver support. Of the patients treated with sacral nerve stimulators, postoperative post void residuals and the patients' subjective impression of their frequency, urgency, and incontinence were assessed.

Results

Of the patients treated with sacral neuromodulation, median follow-up time was 23 months. All three patients (100%) report resumption of spontaneous voiding with enough control to remain socially continent, as long as a caregiver is available to assist with bathroom access. One patient still has nocturnal enuresis, but only 50% of the time. The mean preoperative post void residual was 544mL (348 - 805mL). The mean postoperative post void residual was 55mL (0 - 120mL). There have been no complications. Reprogramming of the sacral nerve stimulator has been necessary in all three patients, but only in the immediate six month period following surgical implantation of the device. Rare amplitude adjustments are required by the patients or their caregivers.

Interpretation of results

This study shows that sacral neuromodulation can be an important therapeutic option in select patients with cerebral palsy and voiding dysfunction. However, sacral neuromodulation may not necessarily be appropriate for every patient with voiding dysfunction and cerebral palsy, because their global level of function may mandate alternative therapy. Nonetheless, it should be included as a therapeutic option. Factors that influence choice of definitive treatment include patient mobility, level of cognition, and level of caregiver involvement.

Concluding message

Voiding dysfunction in adult patients with cerebral palsy is a relatively common condition. In select patients sacral neuromodulation is an important therapeutic option. A thorough evaluation of a patient's level of mobility, cognition, and caregiver involvement must be performed before selection of a definitive treatment for voiding dysfunction.

FUNDING: NONE

DISCLOSURES: NONE

HUMAN SUBJECTS: This study was approved by the Institutional Review Board and followed the Declaration of Helsinki Informed consent was obtained from the patients.