243

Powell C[1], Daniels D[1], Braasch M[1], Kreder K[1]
1. *University of Iowa*

SACRAL NEUROMODULATION IN DIABETIC PATIENTS: SUCCESS AND COMPLICATIONS IN THE TREATMENT OF VOIDING DYSFUNCTION

Hypothesis / aims of study
To determine if diabetic patients treated with sacral neuromodulation (SNM) have different success rates or subsequent complications from non-diabetic patients. To determine if success varies by indication for neurostimulation in this population.

Study design, materials and methods
Thirty-two diabetic patients (mean age 61.8 yrs, range 27-83) with urge incontinence, urgency-frequency syndrome, and/or urinary retention refractory to conservative treatment (pharmacologic, behavioral, biofeedback therapy) were retrospectively evaluated along with 211 non-diabetic patients (mean age 54.1 yrs, range 20-86) with similar symptoms. Patients who experienced >50% reduction in urinary symptoms following a 7- to 21-day test period went on to permanent InterStim® (Medtronic, Minneapolis, MN) device implantation. Chi-squared analysis was used to judge significance between the groups. Long-term efficacy and complication rates requiring device explantation were determined.

Results
No significant difference was found in successful conversion rates from test period to permanent implantation between diabetic and non-diabetic patients. Implant rates for diabetics were 80.8% for urge incontinence, 85.7% for urgency/frequency, and 66.7% for urinary retention. Long-term success rates at a mean follow-up of 29.3 months for the diabetic patients were 69.2% of those with urge incontinence, 85.7% of those with urgency-frequency, and 66.7% of those with urinary retention at the last follow-up visit. This was not significantly different from the non-diabetic cohort, who experienced implant rates of 80.0% for urge incontinence, 76.5% for urgency/frequency, and 65.5% for urinary retention (p=0.929, 0.437, and 0.944, respectively). Long-term follow-up success rates in the non-diabetic cohort were 67.0% for urge incontinence, 67.8% for urgency/frequency, and 58.2% for urinary retention at a mean follow up of 29.3 months (p=0.823, 0.157, and 0.631, respectively).

Twenty-four of 32 diabetic patients (75%) and 141 of 211 non-diabetic patients (68.8%) were implanted with a permanent InterStim® device. There were no intraoperative complications. Nine of 24 (37.5%) InterStim® devices were explanted postoperatively in diabetic patients, compared with 36 of 141 (25.5%) in non-diabetic patients (p=0.224) during the 29.3 month follow-up period. Reasons for explantation varied; however, the proportion of explants due to infection was higher in diabetic patients at 16.7% compared to non-diabetic patients at 4.3% (p=0.018).

Interpretation of results
No difference in test period outcomes or long-term success rates in the treatment of urinary urge incontinence, urgency-frequency, and urinary retention refractory to non-surgical therapies was seen in diabetic patients when compared with similar, non-diabetic patients. Diabetic patients did, however, have a higher incidence of device explantation due to infection.

Concluding message
Our results demonstrate that sacral neuromodulation is a safe and effective treatment approach in diabetic patients, with similar success rates to the non-diabetic population, but with an increased need for explantation due to infection..

Key words: voiding dysfunction; diabetes mellitus; electrical stimulation

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Was this study approved by an ethics committee?	**Yes**
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Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**No**