



# Sacral neuromodulation in pediatric age group : therapy effectiveness in Saudi Patients

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## ABSTRACT

Sacral electrical stimulation has been used for more than a century as an alternative therapy for adult urinary syndromes. In the literature, several studies have validated the efficacy of this technique based on clinical and urodynamic criteria. Nevertheless, few studies have shown beneficial results in children with overactive bladder. while Bladder dysfunction and constipation are common in pediatrics. Sacral neuromodulation (SNM) is a minimal invasive therapy for lower urinary tract symptoms. It is a promising option in children for both constipation, urine and fecal incontinence .The aim of our research is to study sacral neuromodulation effectiveness in pediatric age group in Saudi Arabia.

## METHODS

### STUDY DESIGN, MATERIALS AND METHODS

A prospective cohort study was conducted at King Abdulaziz University Hospital, Jeddah, Saudi Arabia from April 2017 till Jan 2020 .We included pediatric patients with normal upper tract and diagnosed to have urine incontinence , fecal incontinence, high PVR and using intermittent catheterization (CIC) to empty bladder and patients who are refractory to the maximum medical treatment ,or discontinued therapy because of side effects. Candidate child's parents are counselled in the clinic for sacral neuromodulation , technique, risks and benefits. The procedure was done in two phases under General anesthesia. All cases were done by same single surgeon using standard technique .

## RESULTS

Total Candidates' parents counselled in clinic were 105.

Parents acceptance rate were 37.1% 39/105.

Only 39 pediatrics underwent phase one procedure.

Successful phase one was in 29 with Implantation rate 74% (29/39).

Patients age were from 8 to 16 years .

Diagnosis: spinal bifida 8, Posterior urethral valve 2, Hinman's syndrome 18, fecal incontinence 1 urodynamic baseline showed Overactive bladder in 22 patients, atonic bladder in 6 .

## RESULTS

Patients post implantation become urine continent in 60% ( 18/28)

Fecal continence rate was 66% (6/9)

Medications were discontinued in 50% ( 15/29) .

Intermittent catheterization was stopped in 40% ( 12/28)

**Complications** : electrode migration in 1 patient, loss of efficacy in 1, and 2 device explanation for normalized nerve function after device is turned off for 1 year

Diagnosis (n)	Continenence rate	Anticholinergic medications use	Intermittent catheterization (CIC)
Spina bifida (8)	Fecal and urine continence rate 60% ( 5-8)	Stopped 30% (3/8)	Stopped 50% ( 4/8)
Posterior urethral valve (2)	1 urine continent	1 stopped medication	decreased frequency of CIC
Hinman's Syndrome (18)	60% urine continence (12/18)	60% stopped medications (10/18)	40% stopped CIC (8/18)
Fecal incontinence + functional constipation	Fecal continence Regular bowel movement 2xday Resolved constipation	Stopped medications	NA

## CONCLUSIONS

1-Sacral neuromodulation showed safety and effectiveness in selected pediatric patients.

2-Parents acceptability of therapy is low as a newly introduced off label therapy and need cooperative , highly educated parents .

3-The reported normalized nerve function suggests early treatment with neuromodulation may lead to resolution of symptoms which will need more studies

## REFERENCES

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