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## **THE FIRST IRAQI EXPERIENCE IN SACRAL NEUROMODULATION FOR IDIOPATHIC & NEUROGENIC VOIDING DYSFUNCTION**

### Hypothesis / aims of study

To present our early experience in Iraq , using sacral neuromodulation ( SNM ) for patients with different types of refractory voiding dysfunctions ( who failed to respond to conservative treatments ) , with discussion of the pathological, technical & social factors that affect the response rate .

### Study design, materials and methods

in this prospective , clinical, interventional study, which was conducted during the period August 2015 to September 2016 , 24 patients were included. They were 14 female & 10 males, their mean age was 30 year , their presentations were overactive bladder / urgency urinary incontinence (UUI ) in 10 patients, incomplete emptying of bladder / non-obstructive retention of urine in 9 patients , and mixed presentation in 5 patients. Voiding dysfunction was idiopathic in 13 patients & of neurogenic origin in 11 patients ( mainly spinal cord pathologies ) . All the patients were evaluated with detailed history, physical examination & investigations ( including voiding diary, ultrasound scanning & urodynamic studies ), and all were treated with the two stage SNM, using the Interstim system with tined leads ( after giving the patients full explanation about this kind of therapy, and taking their consent ) . Successful clinical response is defined as achieving 50% or more improvement in voiding diary variables .

### Results

In general ( for all types ), positive response was achieved in 70% during the test phase but it was drop to 58% after implanting the pulse generator ( permanent phase ) , the mean age of responders was 28 year, females were better responding than males ( 71.4% vs 40% ), Response according to presentation was 60% in those with overactive bladder / UUI, 67% in those with retention of urine and 40% in those with mixed presentation . Response rate in idiopathic voiding dysfunctions was 84.6% while in neurogenic dysfunctions it was 27.5% , which was a statistically significant difference . Complications encountered were infections, pain & dislodgement/ break of lead . Extra urinary benefits recorded in some patients were improvements in bowel motion , erectile function, relieve of chronic pelvic pain & even a significant improvement in the lower limb muscle power in one patient with incomplete spinal cord injury .

### Interpretation of results

Successful clinical response achieved in this study may be less than in other series <sup>(1)</sup> because of our early experience in this kind of therapy. The possible reasons for the drop in response after implanting the pulse generator were technical ( dislodgement of lead in 1 patient & infection in 3 patients ) and psycho-social factors ( in our society, some young female patients, after having good initial response to SNM, they became socially isolated because of embarrassment & feeling of stigma being depending on a device in their bodies, and this frequently end with worsening of their response to treatment ) . Differences in response in correlation with the type of presentation were statistically not significant , while response in correlation with the type of pathology ( idiopathic versus neurogenic ) was with a statistically significant difference ( P-value 0.004 ), which was also concluded by other studies <sup>(2)</sup> and may be explained by the fact that those patients with idiopathic voiding dysfunction have more intact spinal cord tracts for the transmission of the signals to the brain .

### Concluding message

SNM is a safe & reasonably effective treatment modality, that can be used as a second line therapy for a selected group of patients with refractory voiding dysfunctions.

\* Best results achieved in psychologically stable, in females and in young patients, with idiopathic voiding dysfunction, using the 2- staged procedure with Tined-lead electrodes .

\* Though the response to SNM was less in Neurogenic voiding dysfunction, but the procedure was safe ,and for those who responded, there was a dramatic improvement in their quality of life .

**Table 2** Response of the patients to test phase and permanent implant, according to gender, pathology , presentation and age

Variables	Test phase		p-value	Permanent implant		p-value
	Positive	Negative		Positive	Negative	
<b>Gender</b>						
Female	12 (85.7%)	2 (14.3%)	0.058 ns	10 (71.4%)	4 (28.6%)	0.124 ns
Male	5 (50%)	5 (50%)		4 (40%)	6 (60%)	
<b>Pathology</b>						
Idiopathic	13 (100%)	0 (0%)	0.001*	11 (84.6%)	2 (15.4%)	0.004*
Neurological diseases	4 (36.4%)	7 (63.6%)		3 (27.3%)	8 (72.7%)	
<b>Presentation</b>						
Over-active bladder/UUI	7 (70%)	3 (30%)	0.155 ns	6 (60%)	4 (40%)	0.619 ns
ROU/Poor emptying	8 (88.9%)	1 (11.1%)		6 (66.7%)	3 (33.3%)	
Mixed	2 (40%)	3 (60%)		2 (40%)	3 (60%)	
				<b>Response to SNM treat</b>		p-value
				Good	Poor	
<b>Age (years)</b> <b>Mean ± stand. dev.</b>	-	-	-	27.9±10.3	31.1±10.5	0.46 ns
*Significant at 0.05 level by chi-square test, ns = not significant						

#### References

1. – Luis Augusto SR, Marcio Augusto A., Wagner Franca et al. Initial experience with sacral neuromodulation for the treatment of lower urinary tract dysfunction in Brazil . IBJU 2016; 42: 312-20 .
2. – J.L.H. Ruud Bosch. An update on sacral neuromodulation : where do we stand with this in the management of lower urinary tract dysfunction in 2010 ? . BJU international 2010; 106( 10 ): 1432-1442 .

#### Disclosures

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