

## **DIFFERENT PARAMETERS FOR CHRONIC PUDENDAL NERVE STIMULATION WITH PUDENDAL PERCUTANEOUS IMPLANT (PPI) RELATED ON NEUROGENIC SITUATION.**

### **Hypothesis / aims of study**

There have been several attempts to stimulate the pudendal nerve in order to achieve a beneficial effect on multiple impaired pelvic functions such as urinary and/or fecal incontinence, retention or constipation. During the last few years, physicians have tried applying sacral neuromodulation to neurogenic patients and this was reported to have inconsistent degrees of success.

Our original method for chronic pudendal stimulation (PPI) uses the same system for minimally invasive sacral nerve stimulation (staged implant with tined lead), with the possibility to implant a lead, close to pudendal nerve, under neurophysiological guidance.

### **Study design, materials and methods**

Fifteen neurogenic patients (8 male, 7 female – mean age 38, 21-66) complaining symptoms of urge incontinence due to neurogenic overactive bladder, underwent PPI which is performed using neurophysiological monitoring to implant a lead into the Alcock's canal close to pudendal nerve.

All patients were neurogenic: 8 non traumatic (6 myelitis, 1 syringomelia, 1 cerebellum neoplasia), 7 had spinal cord trauma (incomplete lesion at the cervical level in 3, at level D12-L1 in 2, complete dorsal lesion in 2).

All patients were submitted to complete neurophysiological and urodynamic evaluation at baseline and follow-up and were asked to fill out a bowel and voiding diary for 7 days.

After implant all patients were submitted to a weekly evaluation to set best parameters of stimulation.

### **Results**

Eight patients became continent during the screening phase and 2 patients improved by more 88% (from 9 to 1 daily incontinence episodes), 2 patients reduced by 50% the number of incontinence episodes and 3 patients had no improvement.

Four out of the 7 patients with constipation increased weekly evacuations from 2.5 to 7. One patient with associated fecal incontinence became continent.

Urodynamic evaluation showed objective improvement in maximum cystometric capacity and in maximum pressure. Twelve patients implanted with permanent stimulator achieved continence at the last follow-up (average follow-up eight months) although one of these was explanted one month after IPG implant because of erosion of the skin at the site of the connection between the lead and the extension cable.

At the moment seven patients with myelitis uses a stimulation on demand (with 5 Hz of pulse rate) at appearance of urge obtaining continence and increasing the time to go to the toilet (mean 45 minutes).

Three patients with cervical trauma obtaine results with IPG set on (5 Hz ) during the day and off during the night. They use nocturnal stimulation only to obtain bowel voiding.

Two patients, one syringomelia and one complete dorsal lesion use a continuous stimulation (5 Hz.).

### **Interpretation of results**

The method of pudendal percutaneous implant under neurophysiological guidance seems to be a new way in treatment of neurogenic overactive bladder, better than sacral nerve stimulation. The procedure is safe and reversible. From these preliminary data, a strategic issue is to find best parameters of stimulation and time of application of the therapy.

A continuous monitoring of results related on parameters is the way to achieve further informations.

**Concluding message**

Parameters setting seems related on neurophysiological baseline situation. A multicentric protocol is going to start to obtain a larger experience.