

## **SACRAL ANTERIOR ROOTS ELECTROSTIMULATION AND BOWEL FUNCTION**

### **Aims of Study**

Despite of considerable literature of pathophysiology on bowel dysfunction in neurogenic diseases or injury, little has been done on practical management.

Today it's possible to treat bladder dysfunctions in complete upper motor neurolesion (UMNL) by posterior sacral rizotomy (sacral deafferentation SDAF) and anterior S2, S3, S4 bilateral anterior roots stimulation (SARS). The same method is useful to achieve a better bowel function during stimulation and erection in men

The pelvic floor and the urethral sphincter share the same sacral roots as the bladder and rectum. The detrusor is slower to develop a contraction than is the rapidly acting striated muscle; however, when the current is switched off, the sphincter relaxes rapidly while the detrusor does so more slowly, and voiding occur post – stimulation.

The same mechanism is possible in voiding bowel, setting a program with stimulation bursts bilateral in S3 and S4 (25 second of stimulation and 40 second Off) and changing frequency and pulse width in every patient to obtain rectal pressure as high as possible and post stimulation relaxation of the sphincter.

### **Methods**

Sixteen patients (13 female, 3 males – 13 dorsal lesions, 3 cervical lesions, age 28 – 51) submitted to simultaneous posterior rizotomy and implant of sacral electrodes, intradural in 6 and extradural in 10.

The program is set for micturition one week after the implant. The program for defaecation and erection is set one month later.

### **Results**

In 7 patients we achieve a satisfactory result in using SARS also for bowel function.

We used a self-adapted program in time of bursts in which every patient can set the duration of bursts and pauses for defaecation. The mean time for stimulation bursts in patients was 8 second of stimulation with PW 350  $\mu$ sec, 25 Hz frequency, and intensity of stimulation of 40 V. The mean stimulation off-time was 17 seconds.

In 5 patients we achieved voiding of the rectum and in 2 patients an increase in colonic activity leading to a manual evacuation quicker and more complete.

In three patients we achieved a good results in finding better parameters using anorectal manovolumetry.

### **Conclusions**

Direct stimulation of sacral roots is a good tool for defaecation in complete spinal cord lesions.

The research of best parameters and use of anorectal manovolumetry is important as the use of videourodynamic for bladder emptying. Further studies related on parameters for defaecation are necessary.