109

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RESULTS OF IMPLANTATION OF SACRAL ANTERIOR ROOT STIMULATOR COMBINED WITH POSTERIOR RHIZOTOMY IN PATIENTS WITH SPINAL CORD INJURY IN LATIN AMERICA

Hypothesis / aims of study

To analyze the results of the initial experience of the treatment of patients with spinal cord injury associated with neurogenic detrusor overactivity in Latin America.

Study design, materials and methods

We completed a descriptive study of the results obtained from 98 patients diagnosed with spinal cord injury associated with neurogenic detrusor overactivity who were implanted with SARS combined with posterior rhizotomy since 2009.

Descriptive variables were taken into account, clinical variables such as cystometric bladder capacity, post void residual, presence of infection, state of incontinence, sexual and intestinal function, and other variables related to surgical intervention like post-surgical infections, development of stones and function of the implant.

A frequent and descriptive analysis was made of all the variables using the statistical program SPSS 15.

Results

91% of patients were male with an average age of 38±10 years. 62% of injuries were found at the thoracic level, 35% at the cervical level and 3% were lumbar. The main cause of injury was trauma (66%). 85 patients showed a class A injury using the ASIA classification system with a injury evolution between 42 and 175 months.

Before the implantation of SARS, 87% of patients had complicated urinary infections dropping to only 16% after treatment.

All patients in our study showed urinary incontinence, which was cured in 87% of the cases. Autonomic dysreflexia dropped by 62%.

In urodynamic parameters, we were able to increase bladder capacity reaching volumes greater than 400mL in 94% of cases, achieving very effective voiding since only 9% of patients showed post void residual greater than 50mL.

Even though the main objective of SARS is bladder voiding, the procedure was used to help with erection in 56% of patients, and in 87% of cases it was used for defecation.

Post surgery, 6 patients showed infection which was cured with standard antibiotic treatment. Another 6 patients needed a replacement device, which was completed without any complications.

Due to incontinence in 6 patients, it was necessary to place an adjustable suburethral mesh (REMEEX), and in one case it was necessary to apply a botulinum toxin shot in the sphincter.

Interpretation of results

The clinical results observed in our series are similar to those reported by various authors. Kutzenberger et al (1) reports an average increase of bladder capacity of 303mL. In our series, after the proceedings 94% of patients had a bladder capacity greater than 400mL.

With the posterior rhizotomy first proposed by Suaerwein, bladder capacity increases when the reflex arch is removed with autonomic dysreflexia decreasing as well. In our patients, we observed a decrease of 63% in episodes of dysreflexia after the procedure. Before the procedure, all patients had urinary incontinence, which affected their quality of life greatly. In 87% of patients this problem was resolved.

Even without the use of SARS, many authors have written about the clinical benefit and improvement in the quality of life of patients provided by posterior rhizotomy by eliminating neurogenic detrusor overactivity, detrusor sphincter dyssynergia and the decrease of autonomic dysreflexia episodes (2,3).

Bladder voiding, being the main objective of the implantation of SARS, in our series was reached in 91% of patients with effective voiding having post void residual less than 50mL after neurostimulation.

We observed a decrease in 61% of the rate of urinary infection, finding a similarity with reports published by various authors who write about a decrease that varies between 20% and 80% (1-3). 87% of our patients use the device to assist with defecation and 56% of patients use it to help with erections.

The complications that arise with implantation have decreased substantially with the team's experience, the use of prophylactic antibiotics before and after surgery, and the coating of the device elements in antibiotics reducing the risk of infection. Six patients in our series had infections that were resolved with doses of antibiotics. Complication rates have been reported up to 40% and are usually resolved up to 90% of the time (1,2).

Concluding message

The results of our experience in Latin America show that electrical stimulation of sacral anterior roots (SARS) combined with posterior rhizotomy presents excellent clinical results in patients with spinal cord injury associated with neurogenic detrusor overactivity improving their quality of life and allowing them to have control of erections as well as the emptying of the bladder and intestine with a low rate of complications. These findings make this procedure a good alternative for those patients who are selected appropriately and those in which previous standard treatments have failed

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Disclosures

Funding: No have specify source **Clinical Trial:** No **Subjects:** HUMAN **Ethics not Req'd:** In this study it not was necessary approval because is a convencional treatment and it is no a trial. **Helsinki not Req'd:** because is a convencional treatment and it is no a clinical trial. **Informed Consent:** Yes