Sexual Dysfunction Induced by Intrathecal Baclofen Administration: Is This the Price to Pay for Severe Spasticity Management?

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DOI: 10.1111/jsm.12569

ABSTRACT

Introduction. Intrathecal administration of baclofen (ITB) is widely recognized as an effective treatment for severe spasticity of both spinal and supraspinal origin with fewer side effects. The lower drug dosages used for spinal intrathecal administration, acting directly on the receptor sites, result in greater therapeutic efficacy with less systemic toxicity than with oral preparations.

Aim. This study aims to prospectively evaluate the effects of ITB on erectile function in male patients affected by severe spasticity.

Methods. Twenty adult male patients, with a 34.85 ± 10.27 mean age, affected by severe spasticity mainly due to spinal cord lesions (10 traumatic, three vascular, six degenerative, and one congenital in origin) and treated with ITB, were enrolled in the study. All participants underwent specific clinical scales to evaluate force, muscle tone, cognition and mood, and specific sexual questionnaires, including an accurate semi-structured interview.

Main Outcome Measure. The International Index of Erectile Function (IIEF) was used to evaluate sexual function before and after pump implantation.

Results. A comparative analysis of the neurological scales and psychometric scores at T1 (baseline) and T2 (follow-up) showed statistically significant differences before and after pump implantation. In particular, we noted a significant decrease in the IIEF median scores (from 0.42 ± 0.07 to 0.14 ± 0.02, P value < 0.0001) and a correlation between ITB dosage and IIEF scores ($\rho = -0.60$; $P < 0.05$).

Conclusions. This study supports previous findings on a possible negative effect of ITB on sexual function, with regard to erection. Patients who are considering ITB for treatment of severe spasticity should be informed about possible but reversible sexual side effects, especially at higher dosage. Future studies with larger samples should be fostered to confirm these findings for a better management of these, often young, patients. **Calabrò RS, D'Aleo G, Sessa E, Leo A, De Cola MC, and Bramanti P. Sexual dysfunction induced by intrathecal baclofen administration: Is this the price to pay for severe spasticity management? J Sex Med 2014;11:1807–1815.**

Key Words. ITB; Baclofen; Sexual Dysfunction; Erection; Ejaculation; Spinal Cord Injury

Introduction

Intrathecal administration of baclofen (ITB) is widely recognized as an effective treatment for severe spasticity of both spinal and supraspinal origin with a dramatic improvement in spasticity, spasms, and bladder and urethral sphincter function [1,2].

Baclofen is an agonist of the inhibitory neurotransmitter gamma-aminobutyric acid (GABA) blocking the segmental polysynaptic spinal reflex pathways. Oral drug-related most common side effects, i.e., drowsiness, dizziness, weakness, confusion, are strictly dose-dependent and disappear after the drug has been withdrawn. Notably, abrupt discontinuation of oral baclofen may cause

seizures and hallucinations, whereas abrupt ITB withdrawal may result in high fever, rebound spasticity, muscle rigidity, and rhabdomyolysis that can progress to failure of several organs and even death [3].

The lower drug-dosages used for spinal intrathecal administration, acting directly on the receptor sites, result in greater therapeutic efficacy with less systemic toxicity than with oral preparations. Nevertheless, different pharmacological side effects, such as muscle weakness, hypotension, dyspnea, and epileptic seizures, have been reported also in individuals with ITB [4,5].

Moreover, it has been shown that ITB may reversibly compromise erection and ejaculation particularly at higher doses. Indeed, temporary loss of reflexogenic erection, diminished strength or duration of erections, and difficulty in reaching ejaculation without libido alterations have been considered as potential ITB adverse events [6–9].

To this end, Denys et al. [8] showed a marked decrease in erection rigidity and duration with a delay in ejaculation, whereas Jones et al. [9] demonstrated minimal dose-dependent effects on perceived sexual function after baclofen pump implant.

Aims

The aim of the study was to prospectively evaluate the effects of ITB on sexual function, with regard to erectile function, in male patients affected by severe spasticity, mainly secondary to spinal cord lesions (SCLs).

Material and Methods

Study Population

All the eligible patients referred for ITB to IRCCS Centro Neurolesi "Bonino-Pulejo" from January 2010 to December 2011 were asked to enter this observational study, which was approved by the Local Ethics Committee for Clinical Research.

Inclusion criteria were: (i) age >18 years; (ii) absence of severe psychiatric illness; (iii) absence of moderate to severe cognitive impairment; and (iv) no drug potentially inducing sexual side effect intake.

The final study group included 20 males, suffering from severe spasticity due to spinal or brain lesions, with mean disease duration of 6.1 ± 4.45 years, and treated with oral baclofen at a mean dosage of 75 ± 25 mg/day.

Procedures

All the patients underwent specific neurological and sexological tests, administered by skilled healthcare professionals, before pump implantation and approximately 2 months after pump implantation.

Baclofen Administration

ITB was administered by a telemetric pump after positive response to a bolus test by lumbar injection. We used a Synchromed pump with port (Medtronic Inc., Minneapolis, MN, USA), and a drug administration device (DAD) that had a 20-mL reservoir. The pump was powered by a lithium battery (estimated life expectancy 5–7 years) and equipped with a remote control using different application modes (continuous, bolus, periodic bolus, and continuous complex) and flow rates. DAD implantation was performed under general anesthesia by a neurosurgeon. A catheter (Medtronic Inc.) was inserted through a Touhy needle at L3-L4 level. The tip was pushed into the subarachnoid space up to T8 level. The catheter was then sutured to the fascia and connected to another catheter that was inserted subcutaneously at the level of the lateral abdominal wall reaching a subcutaneous pocket created for the pump. Intraoperative fluoroscopy was used to check the implantation (Figure 1).

Clinical and Psychological Assessment

The clinical examination of the patients was carried out using the Modified Ashworth Scale [10] and the Spasm Frequency Scale [1] to assess muscle tone and the presence of spasms, respectively, and the visual analog scale [11] to easily rate pain. Emotional status was tested by Hamilton Depression Rating Scale (HDRS) [12], a 17- to 21-item scale measuring the severity of depressive and somatization symptoms, where a score of ≥15 is generally regarded as indicative of a diagnosis of depression.

Baclofen doses (μg/day) and its concentration (μg/mL) were also noted.

Sexual Function Evaluation

Sexual function was clinically assessed by a semi-structured interview, the International Index of Erectile Function (IIEF) [13], and the Diagnostic Impotence Questionnaire (DIQ) [14].

This semi-structured interview is an ad hoc questionnaire, elaborated by the authors, that evaluates the global personal and sexual function-