CIRUGÍA ESPAÑOLA

www.elsevier.es/cirugia

Original Article

Initial Experience of a Program of Clipping the Sympathetic Nervous System for the Treatment of Hyperhidrosis and Facial Flush☆

Carlos Martinez-Barenys,[a,] Javier Pérez,[b] Pedro López De Castro,[a] Alicia Melero,[c] Miguel Mesa,[a] Samuel García,[a] Esther Fernández,[a] Julio Astudillo[a]*

[a] *Servicio de Cirugía Torácica, Hospital Universitari Germans Trias i Pujol, Badalona, Barcelona, Spain*
[b] *Servicio de Cirugía Torácica, Hospital Universitari Vall d'Hebrón, Barcelona, Spain*
[c] *Servicio de Anestesiología y Reanimación, Hospital Universitari Germans Trias i Pujol, Badalona, Barcelona, Spain*

ARTICLE INFO

Article history:
Received 25 December 2011
Accepted 15 February 2012
Available online 28 June 2013

Keywords:
Hyperhidrosis
Facial flush
Sympathectomy
Clipping
Compensatory sweating

ABSTRACT

Introduction and objective: To evaluate the results of our program of clipping the thoracic sympathetic nervous system (TSNS) for the treatment of facial flush and/or hyperhidrosis (HH), and to compare the methodology-results of the program development phase (A: January 2007–April 2009) and its consolidation phase (B: May 2009–March 2010).

Material and methods: The program included a total of 44 patients (88 procedures) subjected to video thoracoscopy and clipping of the TSNS in a one day surgery unit. Data were collected and analyzed retrospectively, and a descriptive and comparative statistical analysis was performed between the two periods (A and B).

Results: The overall morbidity was 5 cases (11.3%). The post-surgical occurrence rate of HH was 4.54% (2 cases), and the incidence of compensatory sweating was 65.9% (minimal in 26 of the 29 cases). On comparing period B with period A, there was a significant decrease in surgical time, disappearance of recurrence of HH, a decrease of 30% in morbidity, reduction by half in the incidence of moderate to severe compensatory sweating, and an increase in the level of satisfaction. The clamps were removed in one of the poorly tolerated compensatory sweating cases, resulting in its disappearance.

Conclusions: Clipping the TSNS is a safe technique in the one day surgery unit, with a short learning curve (20 cases) after which comparable, or even better, results are obtained than those of sympatholysis. These results, together with their potential reversibility, make it, in our opinion, the technique of choice in the surgery of the TSNS.

☆ Please cite this article as: Martinez-Barenys Carlos, et al. Experiencia inicial de un programa de clipaje del sistema nervioso simpático para el tratamiento de la hiperhidrosis y el rubor facial. Cir Esp. 2013;91:115–120.

* *Corresponding author.*
E-mail address: cmartinezb.germanstrias@gencat.cat (C. Martinez-Barenys).

2173-5077/$ – see front matter

Experiencia inicial de un programa de clipaje del sistema nervioso simpático para el tratamiento de la hiperhidrosis y el rubor facial

Palabras clave:
Hiperhidrosis
Rubor facial
Simpatectomía
Clipaje
Sudoración compensatoria

RESUMEN

Introducción y objetivo: Evaluar los resultados de nuestro programa de clipaje del sistema nervioso torácico simpático (SNTS) para el tratamiento del rubor facial y/o hiperhidrosis (HH) y comparar la metodología-resultados de la fase de desarrollo del programa (A: enero 2007-abril 2009) y la fase de consolidación del mismo (B: mayo 2009-marzo 2010).

Población y métodos: Se ha incluido a 44 pacientes (88 procedimientos) sometidos a clipaje videotoracoscópico del SNTS en régimen de cirugía mayor ambulatoria (CMA). Los datos fueron recogidos prospectivamente y analizados retrospectivamente. Se ha realizado estudio estadístico descriptivo y comparativo entre los 2 grupos.

Resultados: La morbilidad global fue de 5 casos (11,3%). La tasa de recidiva postquirúrgica de HH fue del 4,54% (2 casos), la incidencia de sudoración compensadora (SC) fue del 65,9% (mínima en 26 de los 29 casos). Al comparar el período B con el A, se aprecia: disminución significativa del tiempo quirúrgico, desaparición de la recidiva de HH, disminución de la morbilidad en un 30%, reducción a la mitad de la incidencia de SC moderada-severa e incremento del grado de satisfacción. En uno de los casos de SC mal tolerada se retiraron los clips consiguiéndose la desaparición de esta.

Conclusiones: El clipaje del SNTS es una técnica segura en régimen de CMA, con una curva de aprendizaje corta (20 casos) tras la cual se obtienen resultados equiparables o, incluso mejores, que los de la simpaticolisis. Estos resultados, junto a su potencial reversibilidad, la convierten, en nuestra opinión, en la técnica de elección en la cirugía del SNTS.

Introduction

Primary hyperhidrosis (PH) is a disease of unknown etiology characterized by excessive production of eccrine sweat that can cause severe alterations in patients' social and professional lives. In many cases, there is a vicious circle of sweating–anxiety–greater sweating that limits the patient's self-esteem and makes it difficult to live a normal life.[1]

Currently, endoscopic surgery on the thoracic sympathetic nervous system (TSNS) has become an effective option for the treatment of hyperhidrosis and/or facial flushing (FF).[2–4] In most cases, this surgery entails sectioning the thoracic sympathetic nerve at one or more levels (sympathicolysis) or, less frequently, the exeresis of one or more ganglia of the thoracic sympathetic nerve chain (sympathectomy), to resolve PH.

One of the most worrisome side effects of these surgical treatments for hyperhidrosis is the appearance of compensatory hyperhidrosis (CH), which is sweating that appears in different anatomical areas than the PH (generally back, gluteus and/or thighs) after surgery of the TSNS. Its incidence varies depending on the series (from 14% to 90% of patients); it is mild in up to 90% of cases and severe in 1%–30% of patients who undergo surgery.[5] There is currently no consensus about what factors condition the appearance of CH,[6] but there is growing scientific evidence demonstrating that the higher the level of the TSNS interruption, the higher the incidence of CS; this is especially true if clipping is at the level of or above the second thoracic sympathetic ganglion.[5,7–9]

Neurophysiology studies by Denny-Brown et al.[10] demonstrated that nerve conduction could be suppressed by exerting continuous pressure $\geq$44 g for 2 weeks on the nerve with spring clips. Based on these results, in 1998, Lin et al.[11] demonstrated the efficacy of the technique for treating palmar PH and defended the reversibility of the procedure in cases of intolerable CS by removing the clips. The physiological mechanism of this reversibility is not well understood[4]; and the maximum time that the TSNS can be clipped while still being able to recover nerve conduction after unclipping has not been clearly established. Nonetheless, there is growing evidence that clip removal in cases of intolerable CS leads to either total or partial remission in 50%–80% of cases[9,12,13] which, furthermore, may not be accompanied by reappearance of PH in nearly 50% of unclipped patients.[4]

In our TSNS major ambulatory surgery (MAS) program, we introduced the clipping technique in January 2007. Since then, TSNS clipping has been used as an alternative to sympathectomy/sympathicolysis according to preferences of the patient or surgeon.

This study evaluates the results of our program and compares the methodology and results of the developmental phase of the program (period A: January 2007–April 2009) and consolidation phase (period B: May 2009–March 2010).

Patients and Methods

From January 2007 to March 2010, 99 patients (198 procedures) were treated in the MAS program. All patients gave their informed consent (IC) for the intervention and the use of the data for research purposes.