

## CLINICAL SCIENCE

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### IS GENDER A PREDICTIVE FACTOR FOR SATISFACTION AMONG PATIENTS UNDERGOING SYMPATHECTOMY TO TREAT PALMAR HYPERHIDROSIS?

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**ABSTRACT:** Video-assisted thoracic sympathectomy (VATS) is currently the procedure of choice for the definitive treatment of primary hyperhidrosis because it is an effective, safe, and minimally invasive method. The aim of VATS treatment is to improve the quality of life through the reduction of excessive sudoresis. The purpose of this study was to assess the quality of life after VATS for treating palmar hyperhidrosis according to gender.

**METHODS:** A total of 1044 patients who submitted to the surgical treatment for palmar hyperhidrosis from June 2000 to February 2008 were retrospectively evaluated. The patients were divided into two groups according to gender [719 (68.8%) females and 325 (31.2%) males].

**RESULTS:** There are no statistically significant differences between genders with regard to the quality of life in palmar hyperhidrosis patients ( $p = 0.726$ ). In the interview that was performed 30 days after surgery, the quality of life in the two groups had improved, with no statistical difference between the groups.

**CONCLUSION:** Patients with palmar hyperhidrosis present with an improvement in the quality of life after VATS regardless of gender.

**KEYWORDS:** Hyperhidrosis; Palmar; Sympathectomy; Quality of life; Sudoresis.

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#### INTRODUCTION

Palmar hyperhidrosis is a disease characterized by sweating in the palms beyond the physiological needs of the body, with higher prevalence between the ages of 18 to 54. The disease often significantly affects the patient's quality of life.<sup>1</sup>

Video-assisted thoracic sympathectomy (VATS) is currently the choice procedure for the definitive treatment of primary hyperhidrosis because it is an effective, safe, and minimally invasive method.<sup>2</sup> Since the development of VATS

in the 1990s, this therapeutic modality has been used more frequently, regardless of gender, with favorable results.<sup>3</sup> The aim of the treatment is to improve the quality of life through the reduction of excessive sudoresis.

The major outcome of initial studies was the elimination of sudoresis. However, this outlook has changed, and quality of life has become the most important outcome. In the search for improved outcomes, researchers have looked for possible predictive factors that would indicate better surgical outcomes. Failure in the primary treatment,<sup>4</sup> postoperative compensatory hyperhidrosis,<sup>5</sup> the level of resection of the sympathetic chain,<sup>6</sup> and extension of the resection<sup>7</sup> may negatively influence the results of the surgery.<sup>8,9</sup>

It is well known that women seek surgical treatment more often than men; nevertheless, studies comparing the results of VATS treatment between genders are not available.

The purpose of this study was to assess the quality of life after VATS for treating palmar hyperhidrosis according to gender.

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**MATERIALS AND METHODS**

After obtaining ethical approval for the study, 1044 patients who had been submitted to surgical treatment for palmar hyperhidrosis from June 2000 to February 2008 were retrospectively evaluated. The patients were divided into two groups according to gender [719 (68.8%) females and 325 (31.2%) males].

The age distribution, body mass index (BMI), and resection levels of all patients are shown in Table 1.

The groups were similar in age at the time of the treatment. In addition, all of the patients presented with a BMI in the normal range (between 20 and 25). All of the patients underwent similar treatment following the same protocol and level of ganglion resection.

Until 2002, we performed sympathectomy at the T2 and T3 levels. In 2003, we performed sympathectomy at only the T2 level. In 2004, the procedure was performed at T3 and T4, and in 2005 at the T3 level. Since 2007, we have performed the procedure at the T3 or T4 levels. The treatment was in accordance with the hospital’s ethical standards as set by the Ethics Committee for Analysis of Research Projects on Human Experimentation.

All patients underwent bilateral VATS sympathectomy with two 5-mm incisions. The first incision was made in the fourth submammary intercostal space to introduce the camera (30°), and the second incision was in the second mid-axillary intercostal space to provide a route of entry for the surgical instruments. Ablation using an electrical or harmonic scalpel was the chosen technique in all cases.<sup>10,11</sup>

No mortality or conversion to open surgery occurred in our series. Surgical failure occurred in four (1.2%) male patients and in nine (1.2%) female patients.

All of the patients underwent two evaluations for the purpose of this study: before surgery and one month after surgery. During each visit, the patient’s quality of life was assessed using a standard clinical protocol.<sup>2,12</sup> Postoperative incidence and intensity of compensatory hyperhidrosis was also studied.

Quality of life was classified according to five different satisfaction levels based upon the summed total score from the protocol (range from 20 to 100) before and after the surgery. A summed total score of greater than 84 before surgery indicated a very poor quality of life (from 69 to 84, poor; from 52 to 68, good; from 36 to 51, very good; and from 20 to 35, excellent). A summed total score of greater than 84 after surgery was considered much worse (from 69 to 84, a little worse; from 52 to 68, the same; from 36 to 51, a little better; and from 20 to 35, much better).<sup>3</sup>

A chi-squared test was used to evaluate differences between genders. P-values ≤ 0.05 were considered to indicate statistical significance.

**RESULTS**

The quality of life before surgery is shown in Table 2. There were no statistically significant differences between genders in regard to quality of life in palmar hyperhidrosis patients (p = 0.726).

All patients presented with a poor quality of life before

**Table 1** - Descriptive analysis of each gender.

Gender	Male	Female	Total	P value
<b>age (years)</b>				
average + SD	24.5 ± 7.7	24.6 ± 7.5	24.5 ± 7.5	p = 0.957
median	23	23	23	
minimum - maximum	8.0 - 58	8.0 - 64	8.0 - 64	
<b>Total # of patients</b>	325	718	1043	
<b>BMI</b>				
average + SD	22.8 ± 2.8	20.9 ± 2.2	21.5 ± 2.6	p ≤ 0.001
median	23	20.8	21.3	
minimum - maximum	16 - 31.6	13.6 - 32.3	13.6 - 32.3	
<b>Total # of patients</b>	263	615	878	
<b>Resection levels - n%</b>				
T2	28 (8.6%)	47 (6.5%)	75 (7.2%)	p = 0.191
T2/T3	108 (33.2%)	205 (28.5%)	313 (30%)	
T3	106 (32.6%)	251 (34.9%)	357 (34.2%)	
T3/T4	24 (7.4%)	49 (6.8%)	73 (7.0%)	
T4	59 (18.2%)	167 (23.2%)	226 (21.6%)	
<b>Total # of patients</b>	325	719	1044	

P = chi-square test

**Table 2 - Quality of life before surgery.**

Gender	Male	Female	Total	P value
<b>Quality of life - n(%)</b>				
<b>Before surgery</b>				
Excellent	0	0	0	p1 = 0.726
Very good	0	0	0	
Good	0	0	0	
Poor	73 (26%)	137 (24.9%)	210 (25.2%)	
Very poor	208 (74%)	414 (75.1)	622 (74.8%)	
<b>Total # of patients</b>	<b>281</b>	<b>551</b>	<b>832</b>	

**Table 3 - Quality of life after surgery.**

Gender	Male	Female	Total	P value
<b>Quality of life - n(%)</b>				
<b>After surgery</b>				
Much better	222 (83.5%)	416 (79.2%)	638 (80.7%)	p2 = 0.097
Better	36 (13.5%)	77 (14.7%)	113 (14.3%)	
The same	5 (1.9%)	23 (4.4%)	28 (3.5%)	
A little worse	1 (0.4%)	8 (1.5%)	9 (1.1%)	
Much worse	2 (0.8%)	1 (0.2%)	3 (0.4%)	
<b>Total # of patients</b>	<b>266</b>	<b>525</b>	<b>791</b>	

the treatment, with a predominance of “very poor” ratings (71.2%). No statistical difference was found between genders at this time point.

The quality of life in the postoperative period is presented in Table 3. In the interview performed 30 days after surgery, the quality of life in the two groups had improved, with no statistical difference between the groups.

## DISCUSSION

Palmar hyperhidrosis is a disease that causes deep psycho-social disorders in patients, leading to a poor quality of life regardless of gender. This observation indicates the significant need for a definitive treatment of this disease.<sup>14</sup>

All of the patients evaluated in this study came from the same clinic and were operated on by the same surgical team using similar technical criteria for both groups.<sup>15</sup> The level of resection used in each case was the best at the time that the surgeries were performed. There was no outcome difference between the groups in regard to the level of resection. We observed a similar distribution of the types of resection for both genders, which made the type of resection homogeneous.

Generic methods of assessing the quality of life do not allow for the evaluation of changes in the quality of life for patients with hyperhidrosis. The quality of life protocol

employed in this study has been validated and has been used in several studies in the literature that have focused on hyperhidrosis symptoms in different daily life situations and their influence on the overall quality of life in patients.

We observed a predominance of women (66.3%) in our study population, which can be explained by the greater esthetic/social concern that these patients present regarding this problem, leading them to seek medical attention.<sup>16</sup>

In the postoperative period, assuming no technical failure, there is a substantial change in the patient’s daily life. This change has been verified by the individual’s level of satisfaction and by their overall improvement in quality of life.<sup>17,18</sup> This improvement is maintained from the first month until 12 months following surgery.<sup>20</sup>

We performed sympathectomies from 2000 to 2008 during different seasons. We followed patients that returned from summer to summer, without identifying a difference between the groups.

It is well known that patients with palmar hyperhidrosis present with a poor quality of life<sup>19</sup> that is dependent on the intensity of the hyperhidrosis<sup>20</sup> and on how well the patient adapts to his or her situation.<sup>21</sup> Some individuals do not have very severe hyperhidrosis, but they present with a very poor quality of life, whereas other patients with severe hyperhidrosis may report a not-so-poor quality of life

(adapted patients). In our study, we only operated on patients indicating a poor or very poor quality of life.

The only preoperative factors currently associated with a decrease in the quality of life after thoracic sympathectomy for treatment of palmar hyperhidrosis are surgical failure, higher levels of ganglion resection, and resections at various levels. In an attempt to find a new prognostic factor, we verified the same levels of quality of life (much better) in the postoperative period in all of the patients, regardless of their gender.

VATS is a very safe surgery that immediately eliminates the intense suffering of the patients,<sup>22</sup> generating a high level of satisfaction for all patients.

## CONCLUSION

Patients with palmar hyperhidrosis present with an improvement in quality of life after VATS regardless of their gender.

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