DOI: 10.1590/0100-69912014005005 Original Article

Evaluation of quality of life before and after videothoracoscopic simpathectomy for primary hyperhidrosis

Avaliação da qualidade de vida antes e após simpatectomia por vídeotoracoscopia para tratamento de hiperidrose primária

João Batista Baroncello[1]; Layla Regina Zambenedetti Baroncello[2]; Emílio Gabriel Ferro Schneider[1]; Guilherme Garcia Martins[1].

A B S T R A C T

Objective: To assess quality of life before and after thoracoscopic sympathectomy for treatment of primary hyperhidrosis. **Methods**: we conducted an observational, analytical, cross-sectional and quantitative study. We evaluated patients undergoing thoracoscopic sympathectomy for primary axillary hyperhidrosis, primary palmar hyperhidrosis, and axillary hyperhidrosis associated with palmar one. We applied a questionnaire on quality of life related to hyperhidrosis before and after the operation. **Results**: The questionnaire was administered to 51 patients with a mean age of 32.4 years, 45 women and six men. The average quality of life related to hyperhidrosis in a score of 0-100 before sympathectomy was 34.6 and after the operation it was 77.1. Compensatory hyperhidrosis occurred in 84.3% of patients. **Conclusion**: thoracoscopic sympathectomy improves the quality of life of patients with primary hyperhidrosis, with results supported over time. Compensatory hyperhidrosis occurred in most patients, but did not significantly influence the improved quality of life.

Key words: Hyperhidrosis. Sympathectomy. Thoracoscopy. Quality of life.

INTRODUCTION

Hyperhidrosis is a condition in which the body produces an excessive amount of sweat and can be classified into primary and secondary. Primary hyperhidrosis does not have a known origin and is associated with hyperactivity of the sympathetic nervous system. Secondary hyperhidrosis, on its turn, can be caused by an infection, use of antidepressant drugs, neurological disorders, stress, obesity, and others [1].

Primary hyperhidrosis usually presents symmetrically, affecting mainly armpits, hand palms, face and feet soles. It can cause a decreased quality of life of patients, compromising their daily social and physical activities, and can also cause psychological damage and be harmful to relationships [2].

Seeking to improve the quality of life of patients with hyperhidrosis, many treatments have been developed, whether palliative or definitive, clinical or surgical. However, in a large part of these therapies there is a high failure rate and all can bring complications [3].

Among the palliative treatments there is the use of antiperspirants, iontophoresis, anticholinergic drugs and local injections with botulinum toxin. The definitive treatments are: liposuction, which can present complications such as bleeding, infection, reinnervation and paresthesia; and sympathectomy, a definitive treatment that can come complicate with hemothorax and pneumothorax, among others [4].

Thoracoscopic sympathectomy has been performed with increasing frequency for the treatment of primary hyperhidrosis. This minimally invasive procedure is the one of choice for the definitive treatment for patients with hyperhidrosis, establishing the blockade of the sympathetic thoracic branches. The advent and development of this technique allow the thoracic sympathectomy to be performed with greater safety and precision.

It is essential to assess the quality of life in patients undergoing thoracoscopic sympathectomy before and after the surgical procedure, given that compensatory hyperhidrosis is a frequently encountered disorder that could compromise outcome.

Therefore, this study sought to evaluated the quality of life related to hyperhidrosis before and after the performance of thoracoscopic sympathectomy by assessing patient satisfaction with the operation, the incidence of compensatory hyperhidrosis and quality of life in patients undergoing sympathectomy.

1. Faculty of Medicine, Community University of the Chapecó Region – Unochapecó, Chapecó, Santa Catarina State – SC, Brazil; 2. Western Regional Hospital.

METHODS

The survey was conducted in the city of Chapecó – Santa Catarina State, Brazil, with patients who underwent thoracoscopic sympathectomy for treatment of primary axillary hyperhidrosis, palmar hyperhidrosis and axillary hyperhidrosis associated with palmar one. We excluded from the study patients with craniofacial hyperhidrosis, all patients undergoing thoracoscopic sympathectomy, who did not reside in Chapecó-SC, and patients with whom phone contact through the provided number had been lost phone and the new one could not be found in phone books. Loss of contact was considered after five attempts through the phone numbers provided, on different days, without success.

Data collection was performed at the site suggested by participants after prior contact, with interviews using a closed questionnaire. The questionnaire was filled by the 51 patients who agreed to participate. We evaluated the patients operated on from April 1st, 2007 until March 31st, 2012.

Patients with palmar hyperhidrosis underwent resection of the third thoracic sympathetic ganglion (TSG), patients with axillary hyperhidrosis, resection of the fourth TSG, and patients with the combination of palmar and axillary hyperhidrosis underwent resection of the third and fourth TSGs.

Clinical data collected included the origin and place of birth, age, gender, occupation, postoperative time length, occurrence of compensatory hyperhidrosis and, if so, whether it is acceptable, disturbing or debilitating. In addition, patients were asked whether they would undergo the surgery again and if they were satisfied after it.

We applied a quantitative, closed questionnaire. This questionnaire (Appendix I) was adapted from Campos *et al.* [5] and addresses the quality of life related to hyperhidrosis before and after the surgical procedure, with the summation of a score. The possible range for this score is 0-100 points. When the compensatory hyperhidrosis was present, was classified as acceptable, disruptive or debilitating.

All individuals selected to participate in the survey were asked about the purpose of the research, outcome of the data provided, as well as the autonomy to participate or not, beyond the confidentiality of name and data. We presented the the Informed Consent Statement to all, and participation was conditioned on their understanding and signing. The study was approved with the number 132/12 in the Council of Ethics in Research of the Community University of the Chapecó Region (Unochapecó).

Quantitative variables were evaluated by mean and standard deviation. We used the Student's t test for comparison of quality of life before and after the surgery, and to assess the relationship between quality of life and compensatory hyperhidrosis.

RESULTS

Among the 51 patients who underwent interview with the questionnaire, women accounted for 45 participants (88.2%). The age ranged from 13 to 56 years, with an average of 32.4 (standard deviation 9.5). As for postoperative time, patients were divided between those who were submitted to surgery within 12 months (22 patients) and those who had been operated for more than 12 months (29 patients).

Among the places of manifestation of primary hyperhidrosis, the most common was the axillary region (66.7%), followed by the palmar (21.6%) and associated axillary and palmar primary hyperhidrosis (11.8%).

Compensatory hyperhidrosis occurred in 84.3% of patients. Among the patients with postoperative time up to 12 months, 81.8% had compensatory hyperhidrosis. The subjects in the post-operative time longer than 12 months displayed 86.2% compensatory hyperhidrosis .

Thirty-four patients (66.7%) rated compensatory hyperhidrosis as acceptable, nine rated it as disturbing (17.6%), eight (15.7%) reported no compensatory hyperhidrosis and none of the patients classified it as debilitating. Eighteen patients were in the 12 months immediately following surgery (Table 1).

Twenty-eight patients (54.9%) were fully satisfied with the outcome of surgical treatment, 16 (31.4%) were satisfied, five (9.8%) regularly satisfied, and two (3.9%) dissatisfied.

The average quality of life related to hyperhidrosis of the participants before the sympathectomy was 34.6 (SD = 11.7), and after, 77.5 (SD = 14.5) in a score ranging from 0 to 100, showing statistical significance ($p < 0.001$) (CI: 95%) (Figure 1).

The same evaluation considering postoperatively time showed that patients operated on within 12 months had a score of quality of life of 78.6% (SD = 16.3). The ones operated for more than 12 months, on their turn, had a score of 76.7% (SD = 13.1). Thus, there was no statistical significance between the score and the time after surgery ($p > 0.05$, CI: 95%).

Table 1 - Classification of compensatory hyperhidrosis according to the time after surgery.

Postoperative	Acceptable	Disturbing	Debilitating
Within 12 months	17 (94.4%)	1 (5.6%)	0 (0%)
Over 12 months	17 (68%)	8 (32%)	0 (0%)

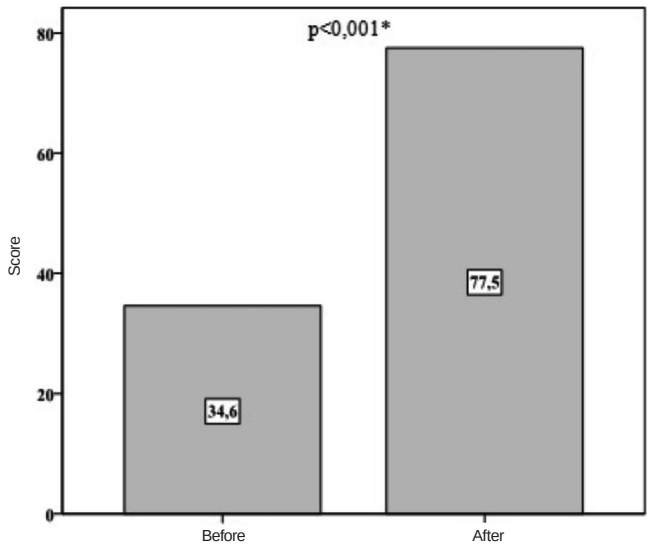

Figure 1 - *Hyperhidrosis quality of life score before and after sympathectomy.*

** Student's t test p <0.001.*

The survey also showed that there was no statistically significant relationship between the presence of compensatory hyperhidrosis and the score of quality of life. After the operation, the mean score in patients with compensatory hyperhidrosis was 77.1, whereas in patients without compensatory hyperhidrosis the average was 79.8 (p> 0.05, CI: 95% – Table 2).

DISCUSSION

The systematization of thoracoscopic sympathectomy has allowed its indication, bringing benefits to many patients with primary hyperhidrosis. The trend is that this type of operation is performed more, since Brazil still has a low rate when compared to other countries. For this therapy to have an increasingly clear indication, we need more studies showing the results obtained with the operation, characterizing the change in quality of life and its adverse effects, such as compensatory hyperhidrosis [6].

The place of presentation of primary hyperhidrosis differs among patients. Strutton et al. found it occurring in the axilla of 50.4% of patients [7]. The present study showed 66.6% of patients with primary axillary hyperhidrosis, 21.57% with primary palmar hyperhidrosis, and 11.76% with primary axillary and palmar hyperhidrosis.

On the improvement of the quality of life and its maintenance over time, Wolosker *et al*. studied 453 patients regarding quality of life after thoracoscopic sympathectomy, the evaluation being made 30 days and five years after the operation. The research concluded that improved the quality of life is immediate after sympathectomy and is sustained until the fifth year. It showed that 30 days after the operation 90.9% of patients reported improvement, 6% reported being in the same condition prior to operation and 3.1% said they had worsened. After five years, 90.3% reported improvement, 6% reported being in the same precondition and 3.7% reported to have worsened, showing no statistically significant difference regarding postoperative time [8]. The present study showed that, with time after surgery up to 12 months, quality of life prior to sympathectomy was 34,3%, and after, 78.6%. In the patients with postoperative time greater than 12 months, the previous quality of life was 34.9% and 76.7% after. So there was also no statistically significant difference as for postoperative time, showing that improvements in quality of life is sustained in the long term.

As for satisfaction with the results of surgical treatment, the study showed that 86.3% of patients were satisfied, 9.8% were partially satisfied and only 3.9% of respondents said they were dissatisfied with the outcome of treatment. Similar results were found by Kaufmann et al., who found that 80.2% of patients were fully satisfied, 10.3% partially satisfied and, finally, 9.5% were dissatisfied with the outcome of treatment [9].

Regarding adverse effects of surgical treatment, compensatory hyperhidrosis is the most frequent in thoracoscopic sympathectomy that can influence the level of satisfaction after the procedure. For Fields et al., the incidence of postoperative compensatory hyperhidrosis varies between 30 and 84% [10]. However, other studies[11,12] show higher rates, 87,03% and 85%, respectively. The present study showed that the incidence of compensatory hyperhidrosis is 84.3%, being present in 81.8% in patients under 12 months of surgery and in 86.2% of participants with more than 12 months after surgery.

The high incidence of compensatory hyperhidrosis leads to the thought that sympathectomy brings no benefit. However, Araújo et al. claim that, despite frequent, compensatory hyperhidrosis affects the quality of life of patients in a minority of times [12]. This makes one's level of satisfaction with operation to remain high. This study showed that although the rate of compensatory hyperhidrosis was 85%, 87.5% were satisfied with the results of surgical treatment. The explanation is that compensatory hyperhidrosis, being mild in most patients, does not cause social, emotional and professional embarrassment such as primary hyperhidrosis does. In the present study we showed that, in patients who developed compensatory hyperhidrosis, quality of life after sympathectomy was 77.1%, as those who had no such complications had a higher quality of life of 79.8%. This result is in agreement with other studies showing no statistically significant difference between the quality of life in post-surgical patients who experienced compensatory hyperhidrosis and those who had no such adverse effect.

In conclusion, thoracoscopic sympathectomy improves the quality of life of patients with primary hyperhidrosis. Although compensatory hyperhidrosis

occurred in most patients, it does not proscribe the treatment, since the quality of life after surgery did not differ significantly between patients who experienced compensatory hyperhidrosis and those who did not.

RESUMO

Objetivo: a*valiar a qualidade de vida antes e após a realização de simpatectomia por videotoracoscopia para tratamento de hiperidrose primária.* ***Métodos:*** *estudo observacional, analítico, transversal e quantitativo. Foram avaliados os pacientes submetidos à simpatectomia por vídeotoracoscopia para tratamento de hiperidrose primária axilar, palmar e a hiperidrose axilar associada à palmar. Foi aplicado um questionário sobre qualidade de vida relacionada à hiperidrose, antes e após a operação.* ***Resultados:*** *O questionário foi aplicado em 51 pacientes com média de idade de 32,4 anos, sendo 45 mulheres e seis homens. A qualidade de vida média relacionada à hiperidrose, em um escore de 0 a 100, antes da simpatectomia foi 34,6 e depois da operação foi 77,1. A hiperidrose compensatória ocorreu em 84,3% dos pacientes.* ***Conclusão:*** *a simpatectomia vídeotorácica melhora a qualidade de vida dos pacientes com hiperidrose primária, sustentando-se ao longo do tempo. A hiperidrose compensatória ocorreu na maioria dos pacientes, todavia não influenciou de maneira significativa a melhora da qualidade de vida.*

Descritores: *Hiperidrose. Simpatectomia. Toracoscopia. Qualidade de vida.*

REFERENCES

1. Park EJ, Han KR, Choi H, Kim do W, Kim C. An epidemiological study of hyperhidrosis patients visiting the Ajou University Hospital hyperhidrosis center in Korea. J Korean Med Sci. 2010;25(5):772-5.
2. Felini R, Demarchi AR, Fistarol ED, Matiello M, Delorenzi LM. Prevalência de hiperhidrose em uma amostra populacional de Blumenau – SC, Brasil. An Bras Dermatol. 2009;84(4):361-6.
3. Dias MDL, Burlamaque AA, Bagatini A, Ribas FA, Gomes CR. Simpatectomia por videotoracoscopia no tratamento da hiperidrose palmar: Implicações anestésicas. Rev Bras Anestesiol. 2005;55(3):361-8.
4. Dias L, Marçal L, Rodrigues M, Alves TCA, Pondé MP. Eficácia da toxina botulínica no tratamento da hiperidrose. Rev Neurociências. 2001;9(3):93-6.
5. Campos JRM, Kauffman P, Werebe EC, Andrade Filho LO, Kuzniek S, Wolosker N, et al. Questionnaire of quality of life in patients with primary hyperhidrosis. J Pneumologia. 2003;29(4):178-81.
6. Leão LE, de Oliveira R, Szulc R, Mari Jde J, Crotti PL, Gonçalves JJ. Role of video-assisted thoracoscopic sympathectomy in the treatment of primary hyperidrosis. São Paulo Med J. 2003;121(5):191-7.
7. Strutton DR, Kowalski JW, Glaser DA, Stang PE. US prevalence of hyperhidrosis and impact on individuals with axillary hyperhidrosis: results from a national survey. J Am Acad Dermatol. 2004;51(2):241-8.
8. Wolosker N, de Campos JR, Kauffman P, de Oliveira LA, Munia MA, Jatene FB. Evaluation of quality of life over time among 453 patients with hyperhidrosis submitted to endoscopic thoracic sympathectomy. J Vasc Surg. 2012;55(1):154-6.
9. Kauffman P, Campos JRM, Wolosker N, Kuzniec S, Jatene FB, Leão PP. Simpatectomia cervicotorácica videotoracoscópica: experiência de 8 anos. J vasc bras. 2003;2(2):98-104.
10. de Campos JR, Wolosker N, Takeda FR, Kauffman P, Kusniec S, Jatene FB, et al. The body mass index and level of resection: predictive factors for compensatory sweating after sympathectomy. Clin Auton Res. 2005;15(2):116-20.
11. Bandeira COP, Sarrão BD, Santos EQ, Souza LP, Bandeira IF. Influência da hiper-hidrose reflexa na satisfação do paciente operado. Acta Scientiarum. 2009;31(1):65-70.
12. Araújo CAA, Azevedo IM, Ferreira MAF, Ferreira HPC, Dantas JLCM, Medeiros AC. Compensatory sweating after thoracoscopy sympathectomy: characteristics, prevalence and influence on patient satisfaction. J bras pneumol. 2009;35(3):213-20.

Received on 03/11/2013
Accepted for publication 02/02/2014
Conflict of interest: none.
Source of funding: none.

Mailing address:
Gabriel Ferro Schneider
E-mail: emiliofs@unochapeco.edu.br

ANNEX I

Questionnaire administered to patients

Name:

Coming from: Born in:

Age: Birth date: Gender: M ( ) F ( )

Phone number:

Clinical Data

1. Location of hyperhidrosis:
( ) Axillary ( ) Plantar ( ) Palmar ( ) Craniofacial

3. Postoperative time in months:
( ) Menos de 12 meses ( ) Mais de 12 meses

4. Compensatory hyperhidrosis:
( ) Yes ( ) No

5. In case of compensatory hyperhidrosis, it is:
( ) Acceptable ( ) Disturbing ( ) Debilitating

7. How satisfied were you with the operation?
( ) Unsatisfied ( ) regularly satisfied ( ) satisfied ( ) very satisfied

Questionnaire on hyperhidrosis quality of life before and after sympathectomy, whose Portuguese version was adapted from Campos et al[5].

Generally speaking, how would you rate your Quality of Life? BEFORE SURGERY?

Excellent	1
Very good	2
Good	3
Poor/Inferior	4
Very poor/Inferior	5

How would you rate your Quality of Life? AT LEAST 30 DAYS AFTER SURGERY?

Much better	1
Slightly better	2
The same	3
Slightly worse	4
Much worse	5

Compared to the period before surgery,

1) FUNCTIONAL / SOCIAL DOMAIN, with relation to the following items, how would you rate your Quality of Life:

	BEFORE SURGERY	AFTER SURGERY
Writing:	1 2 3 4 5	1 2 3 4 5
Manual work:	1 2 3 4 5	1 2 3 4 5
Leisure:	1 2 3 4 5	1 2 3 4 5
Sports:	1 2 3 4 5	1 2 3 4 5
Hand shaking:	1 2 3 4 5	1 2 3 4 5
Socializing (public places):	1 2 3 4 5	1 2 3 4 5
Grasping objects:	1 2 3 4 5	1 2 3 4 5
Social dancing:	1 2 3 4 5	1 2 3 4 5

2) PERSONAL DOMAIN, with your partner / spouse. How would you rate your Quality of Life:

	BEFORE SURGERY	AFTER SURGERY
Holding hands:	1 2 3 4 5	1 2 3 4 5
Intimate touching:	1 2 3 4 5	1 2 3 4 5
Intimate affairs:	1 2 3 4 5	1 2 3 4 5

3) EMOTIONAL-SELF or OTHERS; how would you rate the fact that after sweating/blushing excessively:

	BEFORE SURGERY	AFTER SURGERY
I always justified myself:	1 2 3 4 5	1 2 3 4 5
People rejected me slightly:	1 2 3 4 5	1 2 3 4 5

4) UNDER SPECIAL CIRCUMSTANCES – How would you rate your Quality of Life:

	BEFORE SURGERY	AFTER SURGERY
In a closed or hot environment:	1 2 3 4 5	1 2 3 4 5
When tense or worried:	1 2 3 4 5	1 2 3 4 5
Thinking about the problem	1 2 3 4 5	1 2 3 4 5
Before an examination/ meeting/speaking in public	1 2 3 4 5	1 2 3 4 5
Wearing sandals /walking barefoot	1 2 3 4 5	1 2 3 4 5
Wearing colored clothing	1 2 3 4 5	1 2 3 4 5
Having problems at school / work	1 2 3 4 5	1 2 3 4 5

TOTAL SCORE:		

The effect of treatment in Quality of Life: ***BEFORE SURGERY (20 Excellent – 100 Very poor/ Inferior)***
(As close as) ***AFTER SURGERY (20 Much better – 100 Much worse)***