Oxybutynin treatment for hyperhidrosis: a comparative analysis between genders

Oxibutinina para tratamento de hiperidrose: análise comparativa entre gêneros

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ABSTRACT

Objective: To assess the results of palmar and axillary hyperhidrosis treatment in males and females using low doses of oxybutynin. **Methods:** A retrospective analysis was conducted in 395 women and 170 men followed up in our service with complaint of palmar and axillary hyperhidrosis. **Results:** A total of 70% of patients in both groups presented partial or great improvement in the level of hyperhidrosis after treatment. The best results were obtained in the female group, in which 40% classified their improvement as "great". Approximately 70% of the patients in both groups improved their quality of life after medical therapy and 30% presented no change in condition. **Conclusion:** Gender is not a factor that significantly interferes in oxybutynin treatment results. Quality of life indices and clinical improvement level were similar in men and women.

Keywords: Hyperhidrosis/drug therapy; Mandelic acids/therapeutic use; Mandelic acids/administration & dosage; Hand/pathology; Axilla/pathology; Quality of life; Male; Female

RESUMO

Objetivo: Avaliar os resultados do tratamento com baixas doses de oxibutinina em homens e mulheres com hiperidrose palmar e axilar. **Métodos:** Análise retrospectiva de 395 mulheres e 170 homens acompanhados em nosso serviço com queixa de hiperidrose palmar e plantar, submetidos a um protocolo de 12 semanas de tratamento com oxibutinina. Melhora clínica da hiperidrose e da qualidade de vida foram estudadas por meio de um questionário específico, aplicado antes e após o tratamento. **Resultados:** Dentre os pacientes em ambos os grupos, 70% apresentaram melhoria parcial ou grande no nível de hiperidrose após o tratamento. Os melhores resultados foram obtidos no grupo feminino, no qual 40% classificaram sua evolução como "ótima". Aproximadamente 70% dos pacientes em ambos os grupos melhoraram sua qualidade de vida após a terapia médica e 30% não apresentaram mudança da condição inicial. **Conclusão:** Gênero é um fator que não interfere significativamente nos resultados do tratamento com oxibutinina. Os índices de qualidade de vida e o grau de melhora clínica da hiperidrose foram semelhantes em homens e mulheres.

Descritores: Hiperidrose/quimioterapia; Ácidos mandélicos/uso terapêutico; Ácidos mandélicos/administração & dosagem; Axila/patologia; Mãos/patologia; Qualidade de vida; Homem; Mulher

INTRODUCTION

Hyperhidrosis is a disorder of excessive sweating that significantly affects patient quality of life (QOL), compromising social, emotional, professional and leisure activities[1]. The estimated prevalence rates vary from 1 to 3% in the general population, and recent publications have disclosed predominance in the female gender[2]. The main affected areas are the palms and axillas, in this order of importance[3].

The options for hyperhidrosis vary from topical therapy to surgical treatment, being video-assisted thoracic sympathectomy (VATS) currently considered the most effective, safe and minimally invasive method[4-7]; however, it is associated with an important complication: compensatory hyperhidrosis.

Oxybutynin is an anticholinergic drug increasingly used with good results as an alternative to sympathectomy[8-11], and has become the initial treatment option in our group.

Study carried out at Hospital Israelita Albert Einstein – HIAE, São Paulo (SP), Brazil; and performed together with Hospital das Clínicas, Faculdade de Medicina, Universidade de São Paulo – USP, São Paulo (SP), Brazil.

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Conflict of interest: none.

It is well-known that women are greatly affected by this condition and seek medical assistance more often than men; this is why prevalence rates are higher in this specific gender[12]. Nonetheless, studies comparing results of oxybutynin treatment between genders are not available.

OBJECTIVE

This study aimed to analyze effectiveness of therapy and QOL according to gender, after treatment of palmar hyperhidrosis (PH) and axillary hyperhidrosis (AH) using low doses of oxybutynin (10mg/d) in a large group of patients (n=565).

METHODS

The Ethics Committee of our institution approved this retrospective study (CAAE 01582112610010071). The analysis was based on the file revision of 565 patients that completed a protocol treatment with oxybutynin for palmar and axillary hyperhidrosis, from January 2007 to December 2011. Forty-eight files that did not contain a complete patient follow-up after 12 weeks of treatment were not included in our study. Patients were divided into two groups per gender: 395 (69.9%) females and 170 (30.1%) males.

Age, body mass index (BMI) and site of hyperhidrosis are shown in table 1.

Table 1. Age, site of hyperhidrosis and body mass index per gender

Variable	Category measures	Female n (%)	Male n (%)	p value
Age	n	395 (69.9)	170 (30.1)	0.420*
	Range (min-max)	5-71	7-57	
	Mean (±SD)	25.7 (±9.50)	25.9 (±10.05)	
	Median	25	24	
Site of hyperhidrosis	Axillary	191 (48.3)	69 (40.6)	0,097**
	Palmar	204 (51.7)	101 (59.4)	
BMI	<25	312 (79)	101 (59.4)	0.0001**
	>29.9	83 (21.0)	69 (40.6)	

* Student's t test; ** χ^2 test.
SD: standard deviation; BMI: body mass index.

Both groups presented similar age distribution at the time of treatment. Over 55% of patients in both groups presented with normal BMI values (<25kg/m^2), however, the frequency of overweight patients was significantly higher in the male gender. PH was predominant in both groups.

Oxybutynin is used as the first therapeutic option in our organization. Most patients already had topical dermatological treatment prior to their first visit, obtaining little or no success. The exclusion criteria for treatment with oxybutynin include: diagnosis of closed angle glaucoma, hypersensitivity to medication and pregnancy or breastfeeding. Patients who do not respond satisfactorily to the medication after 12 weeks are considered for surgery as long as there are no limiting conditions for surgical intervention.

All patients were treated following a strict protocol in a specialized hyperhidrosis ambulatory at the *Hospital das Clínicas* of the *Faculdade de Medicina of the Universidade de São Paulo* (FM-USP). During the first week, 2.5mg of oxybutynin were administered once a day in the evening. This dose was raised to 2.5mg twice a day from the 8th to the 42nd day. From the 43rd day to the end of the 12th week, patients received 5mg twice daily.

Patients were analyzed at three different moments during the course of the study. The first evaluation was carried out before starting medication, the second, after 6 weeks of treatment and the last after completing 12 weeks of treatment. These evaluations were used to assess (1) patient's clinical improvement of PH and AH (as well as in other sites of the body), reported by means of a clinical questionnaire; (2) QOL, using a validated clinical protocol applied at each visit[13,14]

The questionnaire was completed according to the patient's subjective perception of hyperhidrosis improvement, without any interference of the examiners. The evaluation was based on a scale ranging from 0 to 10, in which 0 represented no improvement and 10 represented complete absence of hyperhidrosis. The improvement was recorded as null when the score ranged between 0 and 4; partial, when score varied from 5 to 7; and great, with scores between 8 and 10.

QOL before treatment was classified into five different satisfaction categories, calculated as the added total score from the protocol (ranging from 20 to 100). For scores greater than 84, QOL was considered very poor; from 68 to 83, poor; from 52 to 67, good; from 36 to 51, very good; and from 20 to 35, excellent.

Improvement in QOL after treatment was also classified as five different levels. For total scores greater than 84, the QOL was considered much worse. Scores from 68 to 83, slightly worse; from 46 to 58, unaltered; from 33 to 45, slightly better; and from 17 to 32, much better.

The following parameters were studied in both genders: progress of PH and AH; evaluation of QOL before treatment and improvement in QOL after treatment.

Statistical analysis

For categorical variables, χ^2 or the Student's *t* test were used. These statistical tests were used for comparing

gender, age, and BMI with satisfaction (QOL). The significance level considered for all tests was p=0.05.

RESULTS

The QOL before treatment is presented in table 2. All patients analyzed in our study classified their quality of life as "poor" or "very poor" prior to treatment. There was a significant predominance of very poor quality of life in the female group (70.1%).

Table 2. Quality of life before treatment with oxybutynin

QOL before treatment	Score	Female n (%)	Male n (%)	p value*
Very poor	84-100	227 (70.1)	110 (64.7)	
Poor	68-83	118 (29.9)	60 (35.3)	
Good	52-67	-	-	0.844
Very good	36-51	-	-	
Excellent	20-35	-	-	
Total		395	170	

* χ^2 test.
QOL: quality of life;

As demonstrated in table 3, around 70% of patients in both groups presented partial or great improvement in the level of hyperhidrosis after treatment, without a statistically significant difference between the groups.

Table 3. Improvement in hyperhidrosis after treatment with oxybutynin

Treatment result	Score	Female n (%)	Male n (%)	p value*
No improvement	0-4	116 (29.4)	54 (31.7)	
Partial improvement	5-7	119 (30.1)	54 (31.7)	0.663
Great improvement	8-10	160 (40.5)	62 (36.6)	
Total		395	170	

* χ^2 test.

Improvement in QOL based on the questionnaire assessment is demonstrated in table 4. None of the patients complained of deterioration in QOL after treatment. Approximately 70% of the patients in both groups improved their QOL after medical therapy and 30% presented no change in condition.

The only side effect associated with oxybutynin was dry mouth, observed in 354 patients (62.7%), however none required discontinuation of treatment. The distribution of this adverse event according to gender is presented in table 5. Both genders presented similar incidence rates and intensity of dry mouth.

Table 4. Quality of life after treatment with oxybutynin

Treatment result	Score	Female n (%)	Male n (%)	p value*
Much better	17-32	127 (32.1)	57 (33.5)	
Slightly better	33-45	142 (36.0)	64 (37.6)	
Unaltered	46-58	126 (31.9)	49 (28.9)	0.767
Slightly worse	68-83	-	-	
Much worse	>84	-	-	
Total		395	170	

* χ^2 test

Table 5. Intensity of side-effects (dry mouth) according to gender

Intensity of dry mouth	Female (%)	Male (%)	Total (%)	p value*
Absent	136 (34.4)	75 (44.1)	211 (37.3)	
Light	111 (28.1)	45 (26.4)	156 (27.6)	0.150
Moderate	72 (18.2)	24 (14.2)	96 (17.0)	
Severe	76 (19.3)	26 (15.3)	102 (18.1)	
Total	395	170	565	

* χ^2 test.

DISCUSSION

PH and AH are conditions that may cause severe psychosocial disorders in patients, leading to a poor quality of life regardless of gender. This reinforces the significant need for a definitive treatment for this disorder.

Previous studies disclosed similar incidence rates of hyperhidrosis in both genders[2]. However, as a result of esthetic and social concerns, women are greatly disturbed by this condition and search for treatment more often than men[15]. This explains the higher predominance of women (69.9%) in our population, which is consistent with other studies[2,12].

The validated questionnaire for QOL assessment used in this study allowed a specific analysis of important issues related with this disorder. The questions focus on influence of hyperhidrosis in different daily life situations, involving social and professional activities and emotional aspects. The overall impact in QOL depends not only on the intensity of the symptoms, but also on how well patient adapts to their situation. This may explain the great difference in QOL before treatment, observed between the genders, being the "very poor" classification significantly higher in women.

Over 70% of the women in our study classified their QOL as "very poor" prior to treatment, which demonstrates that women, in addition to seek medical assistance more frequently, are also more affected

by excessive sweating than men. On the other hand, women benefited the most with oxybutynin treatment, presenting a "great improvement" in level of hyperhidrosis, in over 40% of the cases.

Obesity, defined as BMI greater than 30kg/m^2, is a condition commonly associated with more severe sweating, possibly as a result of reduced heat loss due to thicker layers of fat in subcutaneous tissues. These patients have greater difficulty in maintaining normal body temperature levels and therefore produce excessive perspiration as a compensatory mechanism[16]. Despite this well-established association between excess weight and hyperhidrosis, our results with oxybutynin treatment were equally efficient in both obese and normal weight individuals. Obesity apparently does not interfere with results of hyperhidrosis treatment with oxybutynin and therefore cannot be considered a confounding factor. Our group will publish a specific study addressing hyperhidrosis treatment in different weight categories in the future.

Improvements in QOL and level of hyperhidrosis observed in approximately 70% of patients from both groups correlate to findings of previous studies with oxybutynin[8-11]. Similar trends were observed in patients submitted to surgical treatment, being improvements in quality of life slightly higher, but comparable in both genders[12].

Oxybutynin is an anticolinergic drug widely used for treatment of urologic conditions, such as overactive bladder. It is a safe medication, however, associated with limited tolerability due to antimuscarinic side effects, especially noted with the administration of doses over 15mg per day[17]. The maximum dose of 10mg per day associated with the slow and progressive increase in dosage used in our protocol, lowers the incidence of side effects, maintaining effectiveness and improving treatment adherence. The only side effect observed was dry mouth, occurring in 62.7% of patients. Neurologic events were not observed. None of the cases required interruption or discontinuation of treatment due to side effects.

Since the beginning of our activities in 2007, we have used an attendance protocol for all patients. This protocol is filled out with all patient's epidemiological data, clinical complications, QOL data before and after treatment, and clinical results. These have allowed us to carry out the research adequately, with minimal data loss, despite the retrospective nature of this investigation. Further studies are required to examine results and incidence of side effects in patients submitted to prolonged treatment with oxybutynin.

CONCLUSION

Both male and female patients with PH and AH present a significant improvement in the level of hyperhidrosis and in QOL after treatment with oxybutynin. Further studies are required to analyze long-term results of this medication.

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