

The effect of microwave treatment in axillary hyperhidrosis: the patient's perspective.

Laura De Brucker¹, Jan Gutermuth¹, Beatrijs Heykants²

¹ Department of Dermatology, Vrije Universiteit Brussel, Universitair Ziekenhuis Brussel, Brussels, Belgium

² Department of Dermatology, Algemeen Ziekenhuis Turnhout, Da Vinci Clinic, Beerse, Belgium

Background

Treatment of axillary hyperhidrosis through thermolysis of sweat glands has been approved by the US FDA in 2012 (MiraDry®). Since then several studies and case reports were published, however long-term information on efficacy and safety profile is still limited. This device is considered as a non-invasive treatment, using microwaves with a wavelength of 5800 MHz. It reaches an optimal effect after two sessions, with a more permanent result.

Objectives

To evaluate efficacy, side effects and patient satisfaction of axillary hyperhidrosis treatment using MiraDry-based thermolysis of sweat glands.

Methods

We performed a single-center retrospective study of 108 patients with axillary hyperhidrosis ± bromhidrosis who underwent MiraDry treatment from January 2015 to May 2020. Demographic information, Hyperhidrosis Disease Severity Scale (HDSS) which is a validated score of 1 to 4 to assess the degree of sweating and its impact on the daily activities, 11-point transpiration Numeric Rating Scale (NRS), 11-point odor NRS, emotional impact, overall satisfaction and short- (up to three months) and long-term side effects (longer than three months, maximum up to 6 years follow-up) were analyzed.



Results

Demographic Characteristics and Baseline Sweat Assessment	
Characteristic	Value
Sex, n (%)	
Male	37 (34.26)
Female	71 (65.74)
Age (years), n (%)	
18-29	45 (41.67)
30-49	52 (48.15)
50-64	8 (7.41)
65+	3 (2.78)
Race, n (%)	
Caucasian	104 (96.30)
Asian	2 (1.85)
African	0 (0)
Other	2 (1.85)
Body mass index (kg/m ²), average	23.28
No of sessions, n (%)	
1	85 (78.70)
2	23 (21.30)
Previous treatment before MiraDry, except creams, n (%)	
None	78 (72.22)
Oxybutynin per os	0 (0)
Botulinum toxin subcutaneous	27 (25.00)
Surgical	1 (0.93)
Other	2 (1.85)

Table 1. Demographic Characteristics and Baseline Sweat Assessment.

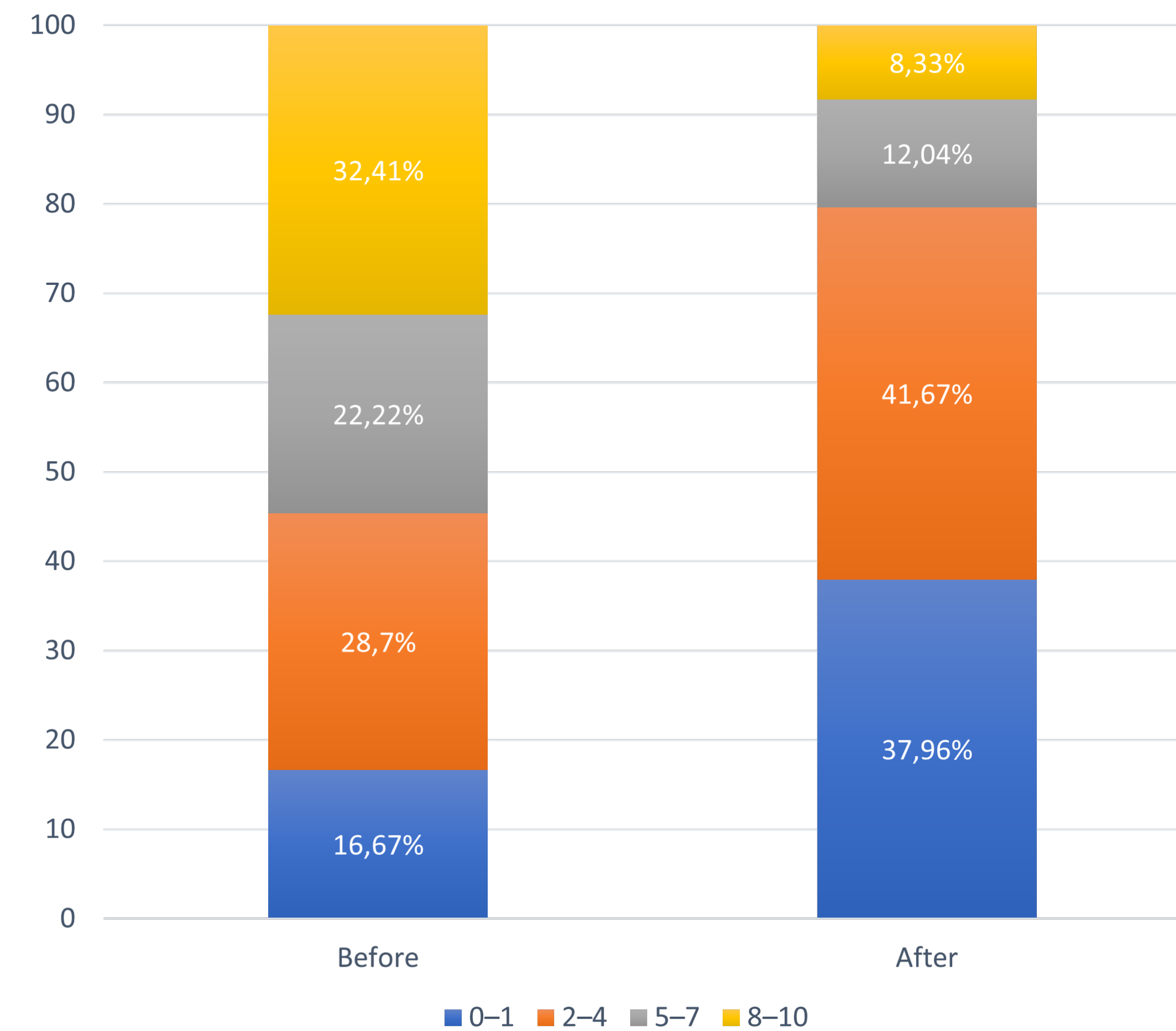


Fig. 2. Microwave-based treatment reduced axillary odor: 11-point odor scale (0-10) before and >12 months after treatment. Most participants were ranked in scores 5 and higher prior treatment and in scores 0-4 after MiraDry® treatment (%).

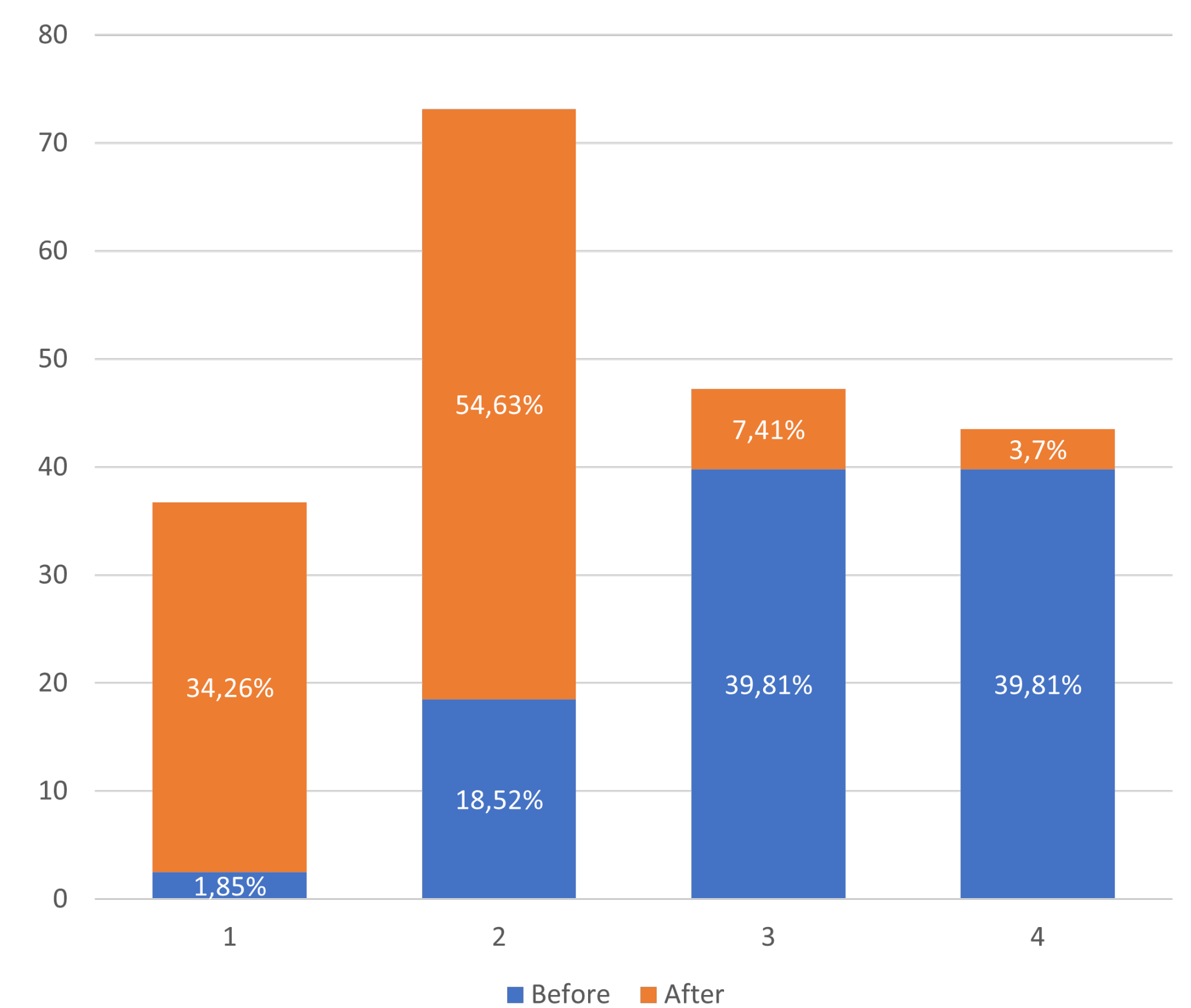


Fig. 1. Reduced hyperhidrosis disease activity after microwave-based treatment: Hyperhidrosis Disease Severity Scale (HDSS) assessing hyperhidrosis disease activity before and at least 12 months after MiraDry® treatment. HDSS measures the degree of sweating and its impact on daily activities (%). Most patients reached disease activity of 1-2 after treatment.

Side effect	≤ 3 months after treatment - no. (%)	> 3 months after treatment - no. (%)
None	3 (2.78)	29 (26.85)
Pain	53 (49.07)	8 (7.41)
Swelling	98 (90.74)	19 (17.59)
String formation	9 (8.33)	6 (5.56)
Inflammations (e.g. cyst/abscess)	8 (7.41)	4 (4.70)
Erythema	30 (27.78)	N/A
Hypoesthesia	57 (52.78)	21 (19.44)
Paresthesia	21 (19.44)	6 (5.56)
Hyperpigmentation	9 (8.33)	6 (5.56)
Axillary alopecia	71 (65.74)	58 (53.70)
Other	8 (7.41)	6 (5.56)

Table 2. Short-term and long-term side effects after microwave treatment. There is a marked decrease of all side effects over three months after treatment.

- HDSS median score: 1-drop reduction from 3 to 2.
- Odor reduction median score (11-point scale): pre-treatment = 5, post-treatment = 2.
- 3 most frequent short-term side effects: swelling (91%), axillary alopecia (66%), hypoesthesia (53%).
- 3 most frequent long-term side effects: axillary alopecia (54%), hypoesthesia (19%), swelling (18%).
- 27% had no long-term side effects. 28.56% had axillary alopecia as only long-term side-effect.
- No significant impact of BMI on hypoesthesia.
- 19% noted paradoxically post-treatment sweating.
- 32% felt anxious that sweating might return and 27% expressed negative emotions.
- 56% had recurrence of excessive sweating at a certain point: 25% <6 months, 18.33% 6 months - 1 year, 41.67% > 1 year. Four patients (6.67%) did not provide details on time course. Five patients (8.33%; or 4.63% of all patients), of which two patients completed a second session, considered themselves as treatment failures due to lack of clinical improvement.
- 77.8% were satisfied they had done the treatment and 65.7% would recommend it.

Conclusion

Microwave-based treatment of axillary hyperhidrosis provides a durable reduction in sweat and odor, with acceptable side effects and a high level of patient satisfaction. Despite that most patients are psychologically satisfied post-treatment, fears of recurrence and insecurity can still have a psychological impact that may require additional medical or psychological treatment.