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Hair removal in women with an 800-nm diode laser: self-reported satisfaction and expectations from treatment are not the same

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Abstract

Laser hair reduction is an established method for unwanted hair removal. A significant esthetic component to the treatment necessitates patient-related outcomes are duly taken into account. Satisfaction and expectations may be either interrelated or independent outcome measures. A mail survey was sent out to 250 women who had undergone laser hair removal at least 6 months after their last treatment. The 6-item questionnaire concerned areas of the body treated, number of treatments, perceived hair loss, level of satisfaction with the treatment, fulfillment of expectations from the treatment, and reasons for not being satisfied with the treatment and/or unmet expectations. Response rate to the mail survey was 69%. One hundred fifty five (90%) patients were satisfied with the treatment, whereas 18 (10%) patients were dissatisfied with the treatment. Treatment did not meet expectations in 33 (19%) patients. When looking into the causes of their dissatisfaction and/or unmet expectations, the lower effectivness was the only factor which significantly affected the above otcomes ($p<0.05$). Though we intuitively link expectations to satisfaction, their relationship is complex, and further studies should aim at construction of standardized scales to measure patients' satisfaction and expectation, in order to further improve effectiveness of laser hair removal.

Laser hair removal (LHR) is now considered the gold standard for long-term reduction of unwanted hair (1). Despite its widespread use, the number of high quality clinical studies which would help to formulate evidence-based guidelines remained relatively low (2). Considering the esthetic component to the treatment, objective evaluation of LHR must include the patients' assessment of the procedure. The end-users' perspective on the LHR is less frequently documented in comparison to "objective" evaluation (3-6). It included mostly the patient's assessment of the amount of hair loss and hair density, satisfaction with the treatment, preference to other treatment modalities, and willingness to recommend it to friends or family members. Usually it is believed that patients' satisfaction is reached when their expectations from the treatment are met. The other way round, satisfaction and met expectations may be considered interrelated. Though this is crucially important for our understanding of the way patients evaluate their care, this aspect of their perception is poorly validated (7, 8).

This paper presents results of a mail survey of patients who underwent laser hair removal in our centre with a goal to get preliminary data on their satisfaction and expectations.

Patients and methods

A questionnaire was mailed to 250 women who had undergone laser hair removal in the Dermatology Centre Parmova in 2001-2002, with the last treatment being completed at least 6 months prior to the survey. The survey was anonymous and contained 6 items: areas of the body treated, number

of treatments, perceived hair loss, level of satisfaction with the treatment, fulfillment of expectations from the treatment, and reasons for not being satisfied with the treatment and/or unmet expectations. Perceived hair loss was graded in the following way: a) total hair loss; b) only rare thin hair had remained; c) more than half of the hair removal; d) less than half of the hair had been removed. The overall patient's satisfaction was classified as "very satisfied", "satisfied", and "dissatisfied". Patients had to answer the question if the treatment met their expectations? with "yes" or "no". All women read, filled in and signed a standard laser form and informed consent prior to treatment. Neither of the women had previously undergone laser hair removal. Patients with recent sun exposure (4 weeks) or photosensitivity were excluded from the treatment. The first appointment consisted of skin examination, consultation, and informed consent. All stages of the first visit were standardized and consultation was designed to offer a patient as much information as needed for the informed consent and answers to questions. All treatments were performed by medical students well-trained in laser hair removal.

Treatments were done with the Light Sheer Diode Laser for hair removal. The device is a semiconductor diode laser system that delivers pulsed infrared light

Table 1. Patients' and treatment's data

Treated sites	Number of patients n= 173	%
Upper lip	107	(62)
Chin	104	(61)
Cheeks	31	(18)
Neck	21	(12)
Abdomen	15	(8.6)
Breast	14	(8.0)
Bikini	27	(15.6)
Thighs	16	(9.2)
Lower legs	18	(10.4)
Back	3	(1.7)
Arms	6	(3.5)
Other	7	(4.0)

at a wavelength of 800 nm, pulse duration 7.5-30 ms, at fluences 15–60 J/cm^2, on a 9-mm spot size. The handpiece contains an actively cooled sapphire lens that provides thermal protection for the epidermis. Anesthesia was not required. The initial treatment settings were adjusted according to skin phototype, skin colour, hair colour and diameter.

Treatments were repeated every 4-8 weeks (depending on the treatment site) until no regrowth of hair was observed in the treated areas or until the dermatologist or the patient deemed further treatment would not improve the results. The minimal follow-up period was set at 6 months (median 12 months, range 6-18 months).

Chi-squared and Fisher's exact test were used for qualitative variables. *P* value <0.05 was considered significant.

Results

Completed surveys were returned by 173 patients (response rate 69%). Great majority of patients treated the upper lip and chin – 62% and 61%, respectively (Table 1). The mean number of treatment s by patient was 6 (range 2-15). Perceived hair reduction greater than 50% was achieved in 160 patients (92%) after a minimal follow-up period of 6 months. Complete hair loss was rarely reported –only in 7 (4%) patients. The most common outcome was the presence of scarce, thin hair within the treated area – 85 (49%) patients (Figure 1). One hundred fifty five (90%) patients were satisfied with the treatment (40% very satisfied and 50% satisfied), whereas 18 (10%) patients were dissatisfied with the treatment (Figure 2). Among those dissatisfied with the treatment, 42% commented on hair loss after the treatment as "only rare thin hair had been remained" or "more than 50% of hair had been removed". Treatment did not meet expectations in 33 (19%) of patients. Moreover, 64% of patients with unmet expectations commented on hair loss as "more than 50% of hair had been removed". When looking into the causes of their dissatisfaction and/or unmet expectations, Chi-squared test has shown that

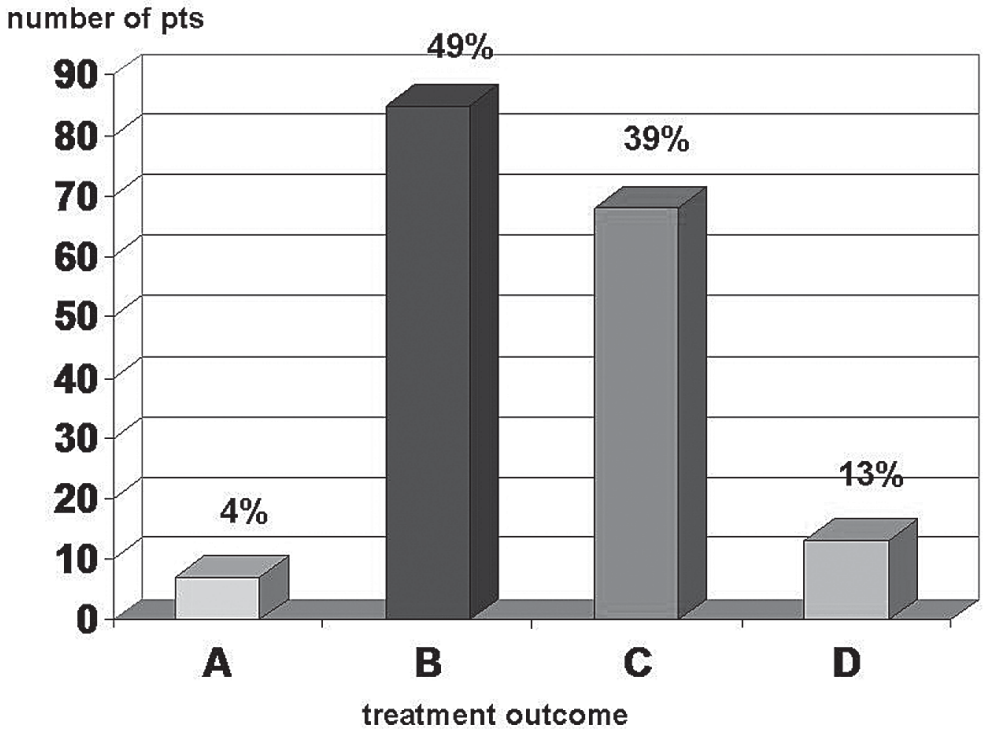

Figure 1. Level of hair loss after laser treatment as perceived by patients. A) total hair loss; B) only rare thin hair had remained; C) more than half of the hair had been removed; D) less than half of the hair had been removed. Pts, patients.

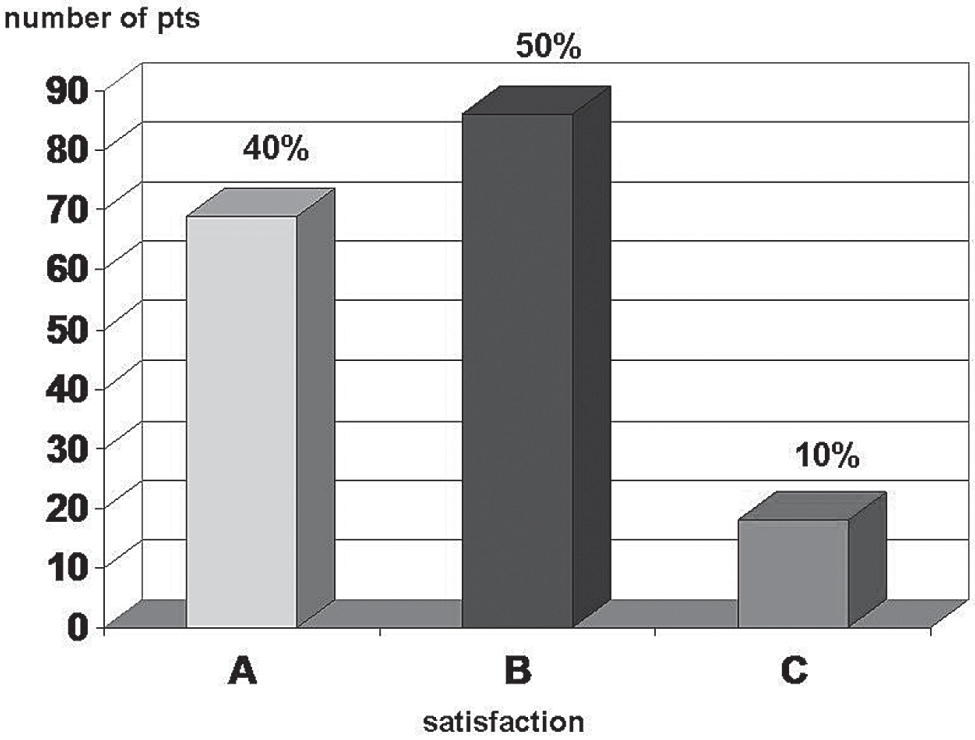

Figure 2. Level of satisfaction by laser treatment as assessed by patients. A) very satisfied; B) satisfied; C) dissatisfied. Pts, patients.

only the lower effectivnes was significantly ($p<0.05$) related to the treatment outcome in terms of patients satisfaction or fulfillment of their expectations (Figure 3). Fisher's exact test has shown that intraoperative pain, white thin hair and price of the treatment were not significantly associated with the above outcomes.

Discussion

Results obtained by this retrospective survey generally confirm the success rate of the 800-nm diode laser in LHR (2). The response rate to the mail survey was rather high – 69%. The satisfaction rate was comparable or higher than rates reported previously (4, 5). The most unexpected finding revealed by the survey was that a considerable number of patients, while being satisfied with the treatment, still had unmet expectations. Instruments to record and validate patients' expectations are still being developed because it is believed that the expectations are very important for creation and delivery of healthcare (7, 8). Of the 4 reasons for dissatisfaction and/or unmet expectations given by patient only lack of effectiveness was significantly different between the groups with different expectations and different satisfaction (Figure 3). Among those dissatisfied with the treatment, 42% assessed the hair loss after the treatment as "only rare thin hairs remained" or "more than half of the hair had been removed" thus the outcome may generally be considered as a successful. It implies that a certain number of patients have very high expectations from the laser hair removal, despite the information they get during the first visit. When patients with unmet expectations were analyzed, 64% had actually lost more than 50% of hair, but still thought it was not enough to meet their expectations. The results of the survey show that satisfaction with the treatment does not necessarily mean that patients' expectations are met. They urge for development of tools specially designed to assess satisfaction in patients undergoing laser hair removal using a standard dermatologic quality-of-life scoring system which might be used in certain situations (e.g. in patients with severe facial hirsutism) (9). Patients' expectations should be measured and analyzed separately, due to obvious

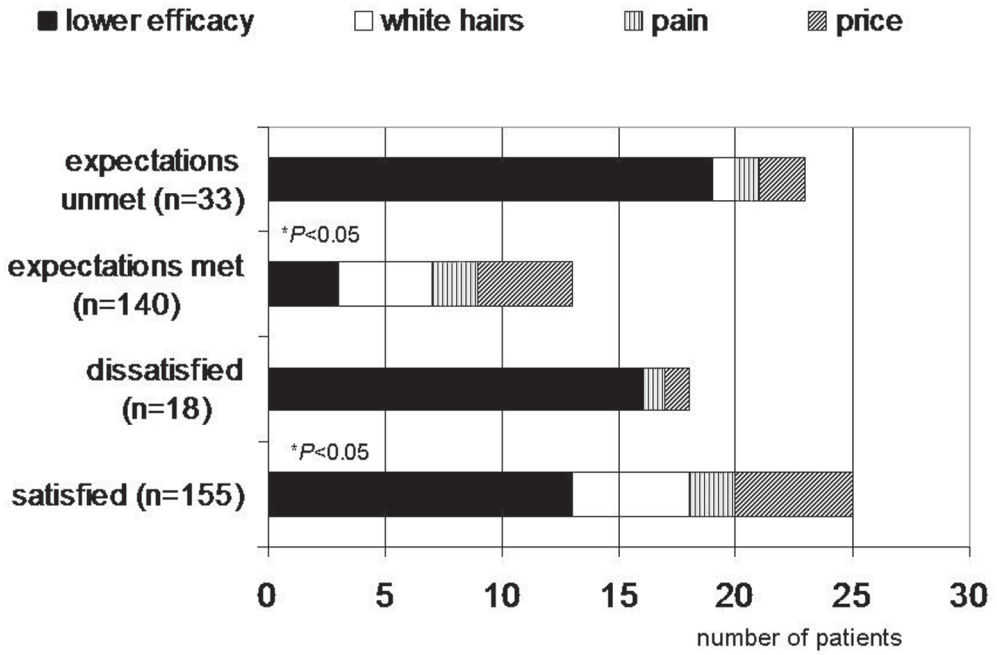

Figure 3. Outcome variables recorded by patients as potential causes for dissatisfaction and/or unmet expectations: *N*, number of patients

complexity of the relationship between satisfaction and expectations (8).

Laser hair reduction is undoubtedly a very effective treatment for removal of unwanted hair, but its effectiveness on the end-user's side may be further improved, not only by technical advancements, but also by fine analysis of requirements for the fulfillment of patients' satisfaction and expectations.

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Uklanjanje dlaka kod žena diodnim laserom talasne dužine 800 nm - zadovoljstvo i očekivanja od postupka nisu isti

Sažetak

Uvod: Lasersko odstranjivanje dlaka je danas standardni način lečenja neželjene kosmatosti. Značajna estetska komponenta lečenja zahteva pažljivu analizu subjektivne procene ishoda lečenja. Zadovoljstvo i očekivanja pacijenta mogu da budu povezani ali i nezavisni parametri uspešnosti lečenja.
Metode: Upitnik je poštom poslat na adrese 250 žena koje su lečene laserskom epilacijom, najmanje

6 meseci posle poslednjeg tretmana. Upitnik je imao 6 pitanja: lečena područja, broj tretmana, procena gubitka dlaka, nivo zadovoljstva lečenjem, ispunjenost očekivanja od lečenja i razlozi za nezadovoljstvo lečenjem i/ili za neispunjena očekivanja.
Rezultati: Upitnik je ispunilo 69% anketiranih. Sto pedesetpet (90%) pacijentkinja bilo je zadovoljno ishodom lečenja, dok je 18 (10%) bilo nezadovoljnih. Lečenje nije ispunilo očekivanja 33 (19%) pacijentkinje. Samo je manji učinak lečenja bio statistički značajan za nezadovoljstvo ili neispunjena očekivanja ($p<0,05$).
Zaključak: Iako očekivanja imaju izvesnog uticaja na zadovoljstvo, njihov međusobni odnos je kompleksan i dalja istraživanja su potrebna da bi se izradile standardizovane skale za merenje zadovoljstva i očekivanja pacijenata, a sa ciljem daljeg unapređenja delotvornosti laserskog lečenja neželjene kosmatosti.