Assessment of laser therapy on the quality of life in patients with hirsutism using the dermatology life quality index

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Background: Hirsutism is defined as the presence of terminal hairs with a male-like pattern in women, due to the increased levels of androgens or increased responses of the target organs to androgens. Facial hirsutism has a negative effect on the quality of life in female patients. Among the many therapeutic modalities for hirsutism, laser therapy is of great acceptability. The long pulse Alexandrite laser, diode laser, and Nd:YAG laser are the most commonly used lasers in the treatment of hirsutism. In this study, we assessed the effect of laser therapy on the quality of life of the patients with hirsutism, using the Dermatology Life Quality Index (DLQI) and Visual Analog Scale (VAS).

Method: Forty-two female patients with idiopathic hirsutism, ranging from 18 to 34 years old, were studied during a course of laser therapy lasting for at least 4 months for up to 3 courses. Each patient completed a DLQI and VAS questionnaire before and after treatment. The VAS questionnaire was also filled out by the dermatologist.

Result: Following laser therapy, the average DLQI score, decreased by 10 points (a statistically significant difference with p- value<0.001). VAS also declined and there was a moderate to good correlation between the VAS scores given by the patient and the dermatologist.

Conclusion: This study demonstrated that laser therapy improved the quality of life in patients with hirsutism.

Keywords: dermatology life quality index, hirsutism, laser, quality of life, visual analog scale

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INTRODUCTION

Hirsutism, the presence of terminal hairs with a male pattern in women, is a common dermatologic condition caused by increased levels of androgens in the body or the hyper responsiveness of target organs to the androgens [1]. Polycystic ovarian syndrome is the most common cause of hirsutism. This condition affects approximately 5 to 15 percent of the population [2]. Hirsutism is considered as a distressing condition with a negative impact on the patient's quality of life [3]. Diverse methods of treatment can be considered for hirsutism including medical therapy, mechanical methods, or laser therapy. To cure the underlying cause of hirsutism, therapy is focused on hormonal interventions, such as suppressing the source of androgen production, blocking the conversion of testosterone to dihydrotestosterone, or reducing the effects of androgens at the receptor level [4]. Laser hair removal is considered one of the most efficient options in the reduction of visible hair. Yet, it may not be an optimal method for every patient and therefore necessitating combination therapy [2]. The long-pulsed Nd:YAG (1064 nm) laser is considered as one of the safest lasers for hair removal due to its long wavelength. Other popular lasers for this purpose are long pulse

Alexandrite laser and diode laser. However, suppression of androgen production by drugs such as sprinolactone, finasteride, oral contraceptives, and other medications is of paramount importance in many cases [5].

Evaluating the effect of dermatologic conditions such as hirsutism on the patients' quality of life is of great importance in both clinical research and practice. The knowledge of the effect of a dermatologic problem on the patient's quality of life may even change the therapeutic approach. One good method to assess this is to use specific dermatologic measures such as the Dermatology Life Quality Index (DLQI). This questionnaire consists of ten questions with multiple choice answers scoring from 0 to 3 [6]. The fact that DLQI is brief, concise, and simple has made it popular for use [7].

Another method is the Visual Analog Scale (VAS). VAS is a method used to measure a subjective phenomenon. The scaling is based on the self-reporting of the subjects [8]. On a 10 cm line, the patient is asked to describe his own status between the two extremities.

This study was designed in order to assess the effect of laser therapy on the quality of life of the patients with hirsutism using the DLQI and VAS.

PATIENTS AND METHODS

A total of 42 females with the diagnosis of idiopathic hirsutism who were referred to Shiraz dermatology clinics for laser treatment were enrolled in this study.

All the cases had facial hirsutism and some also suffered from hirsutism of other body areas. However, this study was limited to facial hirsutism and its treatment. The patients were all treated by Alexandrite or diode lasers by a dermatologist.

Prior to the initiation of laser treatment, the patients filled out the DLQI questionnaire designed by the University of Wales. The reliability and validity of the Persian version was previously assessed at Shiraz University of Medical Sciences [9]. The questionnaire consists of 10 questions with four choices, graded as follows: A-3, B-2, C-1, and D-0. Unanswered questions also score 0 points. The sum of the points, with the upper limit of 30 and the lower limit of 0, represents the DLQI of each patient. Therefore, the higher is the sum, the lower is the quality of life index, which was documented [10].

The patients were also asked to fill out a VAS form. In this scaling system, a 100-mm horizontal line is divided into 10 parts. The zero zone indicates hairlessness, while zone 10 represents the most hair a woman can have [11]. The patients were asked to mark their current hirsute state from 0 to 10. The dermatologist was also requested to do the same for each patient prior to initiation of laser treatment.

The patients then underwent laser therapy using either the Alexandrite or diode laser for a minimum duration of 4 months for up to 3 courses, with a 4-6 week interval between each treatment session. After the completion of treatment, the patients filled out the DLQI questionnaire again. At this time, the VAS form was also filled out by both the patient and the dermatologist.

Statistical analyses were performed using SPSS version 19.0, paired t-test, Pearson correlation coefficient and descriptive methods. The criterion for statistical significance was set at α=0.05.

RESULTS

The participants in the study were 42 hirsute female patients, with an age range of 18 to 34 years (mean= 26 years). Pre-treatment DLQI mean value was 13.9 (range: 5-20, standard deviation (SD): 5.011). The post-treatment DLQI mean value decreased to 3.79 (range: 1-10, SD=2.247) and the difference was statistically significant (p- value<0.001).

The patients' mean VAS score before treatment was 6.38 points (range: 3-10, SD=1.776) and decreased to 2.55 (range: 1-7, SD=1.418) post-treatment, indicating a statistically significant decrease (p- value <0.001).

The mean VAS score by the dermatologist decreased from 5.88 before the treatment (range: 3-10, SD=1.565), to 2.57 (range: 1-5, SD=1.213) post-treatment, showing a statistically significant decrease (p-value<0.001).

The patients' VAS scores (mean=6.38) were higher than that of the dermatologist's (average=5.88) before treatment, but they were almost equal after completion of treatment (patients: 2.55 and dermatologist: 2.57).

DISCUSSION

Hirsutism is a common dermatologic problem

that has a great impact on the patient's quality of life. The knowledge of the effect of a dermatologic problem on the patient's quality of life is of great importance in the management of that condition and can even change the therapeutic approach. Two useful methods to evaluate this impact are the DLQI and VAS [1-3].

One of the common ways for treating hirsutism is laser therapy. The lasers that can be used are long pulse Alexandrite, diode, or Nd:YAG lasers. In this process, these lasers target the melanin in the hair follicle, without harming the surrounding tissues. This method has gained much popularity due to its relatively few side effects and great efficacy [12].

Using the DLQI questionnaire, we demonstrated that laser therapy decreased the mean score, bringing about a higher quality of life with at least 3 courses of therapy (p-value<0.001).

In a similar study conducted at Bedford Hospital in the United Kingdom on 38 cases who had received 3 courses of therapy with 4 to 6 week intervals, the mean DLQI score decreased from 14.08 to 9, a fall of 5 points [11].

In our study, the questions which received the highest scored in the DLQI assessment, were No. 2 (the patients' worry about their dermatological problem), No. 8 (problems influencing friends and spouses) and No. 10 (problems related to treatment procedure). However, in the Bedford study, the questions that received the highest points were No. 2 and No. 4 (effects of the disease on social life) and No. 10 [11]. The reason for the disparity between No. 4 and No. 8 in the two studies could lie in ethnical and cultural differences of the two populations studied.

In another study on 70 patients who were treated for unwanted facial hair by laser treatment, DLQI questionnaires were filled out both prior to treatment and 3 months after completion of three sessions of laser therapy. The DLQI scores showed a decrease (before therapy: 9.42 +/- 5.99 and after therapy: 3.12 +/- 3.40 with p <0.05)), concluding that laser therapy for unwanted facial hair improved the quality of life in hirsute patients [13].

Another study was conducted in Cambridge, United Kingdom, about the impact of laser therapy on the quality of life of female hirsute patients. The subjects participating in this study completed the DLQI questionnaire during six months of therapy. The results showed a significant improvement after 1-2 months of therapy (from 12.8 to 7.0) but the scores gradually increased thereafter (to 11.5 at 4-6 months). In spite of a rising score, the majority of the patients were willing to continue therapy. This study also supported the notion of improvement in the quality of life of hirsute patients who receive laser therapy [14].

In our study, both the DLQI and the VAS scores declined after laser treatment, affirming that laser therapy improved the quality of life of the patients with hirsutism.

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