

PATIENTS' SATISFACTION AND SAFETY OF LASER HAIR REMOVAL

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Submitted: 15/5/2020; Accepted: 23/8/2020; Published: 21/3/2021

ABSTRACT

Background

Laser treatment for controlling unwanted hair or laser-assisted hair removal is ever-increasing in popularity. This technology has been introduced to our practice for more than a decade, and it is fast advancing. Many factories that produce laser machines, and even beauty or aesthetic centers, claim commercially that laser hair removal in all skin types is free of side effects. This study aims to detect the degree of patients' satisfaction with current practice in laser hair removal and the incidence of adverse effects after laser and light systems therapy for hair removal.

Objectives

To find out the degree of patients' satisfaction with laser treatment of unwanted hair or hirsutism in addition to assessing the safety of laser-assisted hair removal, through detecting post-treatment side effects (e.g. redness, pain, scarring, post-laser hyper or hypopigmentation).

Materials and Methods

A cross-sectional study in a private dermatology and laser clinic in Sulaimania city/Iraq-Kurdistan Region. Three hundred (300) patients were involved in our study. They attended ongoing laser hair removal sessions. All patients were interviewed and treated by Dual head Alexandrite/Nd-yag Laser or Diod laser.

Results

Out of 300 patients, included in our study, two hundred eighty-eight were females and their ages ranged from 15 to 64 yrs. The number of sessions was from one to 37 sessions in this group. Duration of laser treatment, found to range from 1 to 50 months. Immediate side effects like redness, blistering, and pain were reported in 76 patients (25.3%), while long-term side effects like hyperpigmentation, acne flare, or scarring were seen in 28 patients (9.3%). Regarding the degree of patients' satisfaction, 167 patients (55.6%) were highly satisfied, 120 (40%) were less satisfied, while 13 (4.3%) were unsatisfied with the results of laser-assisted hair control. Our study found no correlation between both immediate and long-term side effects with the age of the patients. The sessions' number was also well-tolerated and effective treatment modality not related significantly to the age, or the number of sessions.

Conclusion

Laser treatment of unwanted hair is a safe, well-tolerated, and effective treatment modality, which leads to high patient satisfaction.

Keywords: *Laser safety; Hirsutism; Laser-assisted hair control; Patient's satisfaction.*

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INTRODUCTION

Laser treatment for controlling unwanted hair or laser-assisted hair removal is ever increasing in popularity⁽¹⁾. Since 1996, there have been numerous advances in hair laser removal that utilize melanin as a chromophore. Thus melanin captures energy from the laser and distributes it to the surrounding follicular structures. This destroys the hair matrix and hair bulge stem cells⁽²⁾.

Indications are:

1. Hirsutism and hypertrichosis
2. Aesthetic purposes
3. Medical indications like Pseudofolliculitisbarbae, pilonidal sinus, and acne keloidalis nuchae.⁽³⁾

Hirsutism is defined as excessive terminal hair growth in a distribution typical for postpubertal men. It affects approximately 5-10 % of women and most frequently manifests in puberty⁽⁴⁾. Hypertrichosis is a heterogeneous group of diseases with continuing excessive growth of terminal hair⁽⁵⁾.

Although hirsutism is generally associated with hyperandrogenemia, one-half of women with mild symptoms have normal androgen levels. The most common cause of hirsutism is polycystic ovary syndrome, accounting for three out of every four cases⁽⁶⁾.

The vast majority of women with hirsutism have the idiopathic variety, and the diagnosis is made by exclusion. Serum testosterone level > 200 ng/dL is highly suggestive of adrenal or ovarian tumor⁽⁷⁾.

Treatment options include physical methods such as shaving, waxing, threading, bleaching, electrolysis, and laser therapy. Pharmacologic methods include chemical depilatories, oral hormonal therapy (i.e., spironolactone and contraceptive pills), and topical enzyme blockade (eflornithine)⁽⁸⁾.

All of the devices on the market may be used in patients with light skin (phototypes I-III) and yield hair reduction near 75%⁽⁹⁾.

Advances in laser technology over the past several years have led to the development of numerous lasers for the treatment of unwanted hair⁽¹⁰⁾.

Among these commercially available lasers, the

800~810 nm long-pulsed diode laser (LPDL) is one of the most commonly used devices. Compared with the ruby (694.3 nm) or alexandrite (755 nm) lasers, the LPDL is less absorbed by the melanin in the epidermis, making it effective for hair removal even in the darker skin types⁽¹¹⁻¹⁶⁾.

This study aims to detect the degree of patients' satisfaction with current practice in laser hair removal and the incidence of adverse effects after laser and light systems for hair removal.

Regarding the safety of Laser-assisted hair removal, in terms of immediate and long-term side effects, Patients may expect redness, skin irritation, erythema, postoperative hypersensitivity, and possible burns manifested by blisters and scabs. It is also possible to experience pigmentary changes such as hyperpigmentation⁽¹⁶⁾.

PATIENTS AND METHOD

This study was accepted by the ethical committee of the University of Sulaimani.

A total of 300 patients were included in the study over 4 months from March 15th to July 15th 2019

Setting

Private Dermatology & Laser Clinic in Sulaimania city/ Iraq/Kurdistan Region.

Inclusion criteria: All patients attended the above Laser center during that period, for ongoing laser treatment of unwanted hair by Laser.

Exclusion criteria: Patients who are attending for the first time, and those who refuse laser treatment and seek other medical treatments or just need dermatology consultation.

Intervention

In our study we used 2 popular and advanced Laser Machines namely; Alexandrite-Nd-yag dual head and Diod lasers to obtain convenient results and minimize the bias during comparing the efficacy and safety levels to other studies conducted worldwide.

Each patient, who fulfilled the study criteria, to be interviewed and a special form prepared for the study to be filled (Appendix1), then the patient's file that already exists in the center to be reviewed to record the duration of attendance and number of sessions during the period of the first session to the date of interview.

Data Collection & Analysis

All forms filled for the cases included in the study collected, informational data to be entered and analyzed accordingly.

When we want to study the significant difference between the means of two groups, which are related in a certain feature we must follow a normal distribution and may have unknown variances, so an independent Two-sample T-test is used as a hypothesis testing tool, which allows testing of an assumption applicable to a population.

By using SPSS program version 23, we can apply an independent Two-sample T-test to analyze the data to confirm the statistical significance of the study. We must use the p-value (probability value) which is the probability of obtaining test results as extreme as the results observed during the test, assuming that the null hypotheses are correct, we must ensure that P-value <0.05.

Expected Outcome/Significance of the study

Obtaining proving clinical data or evidence-based information to determine the degree of patients' satisfaction and safety of the laser therapy in the treatment of hirsutism or unwanted hair.

RESULTS

A total of 300 patients were included in the study.

Demographic characteristics:

Most of the patients were female (96%), and just (4%) were males, their ages ranged from 15-64 years (mean 30.33 years), as shown in Figures (1 and 2).

The number of sessions conducted for the patients ranged between one to 37 sessions till the time of interview (mean = 7.33 sessions) as shown in (Figure 3).

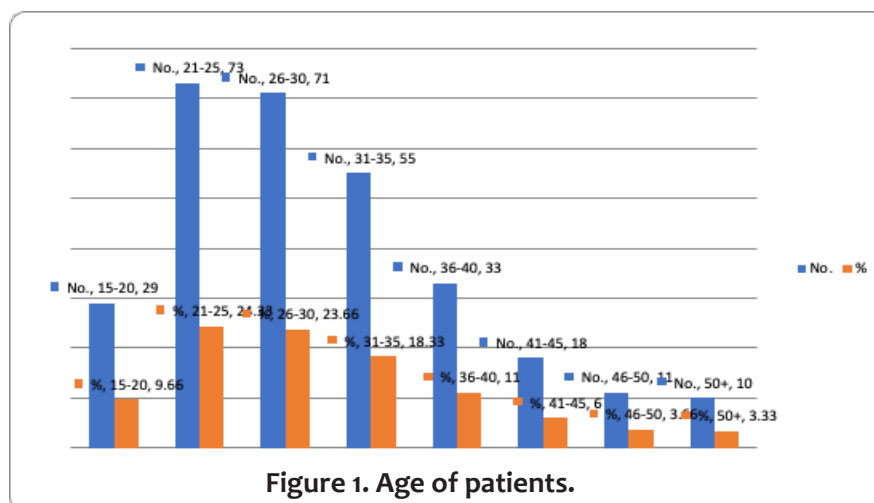
Figure 4 shows the duration of treatment which is found to be between 1- 50 months till the time of interview (mean =14.62 months).

Immediate side effects: Most of the patients treated by laser did not show side effects in (74.7%), while (14.7%) showed redness, and few of them had blistering or combined both blistering and redness in (7.7%), and (3.3%) respectively, as it is shown in Figure 5.

Long-term side-effects: It was found that (88%) of the patients showed no long-term side effects while only a few patients show few side-effects like hyperpigmentation or acne flare in the percentage of (9 % and 3 %) respectively, as shown in (Figure 6).

Patient overall satisfaction at the end of sessions: More than half of patients were almost satisfied with the results (55.3%), as shown in figure (7) below.

Our study found that there were no significant associations between both immediate and long-term side effects after finishing sessions with the age of patients. Also, the sessions' number was not significantly related to immediate or long-term side effects. Finally, overall patients' satisfaction as well, was not related significantly to the age, or some sessions, as explained by (Table1). These findings indicate that both immediate and long-term side effects of & patients' satisfaction for the laser are irrelevant to their ages or number of sessions conducted for them.



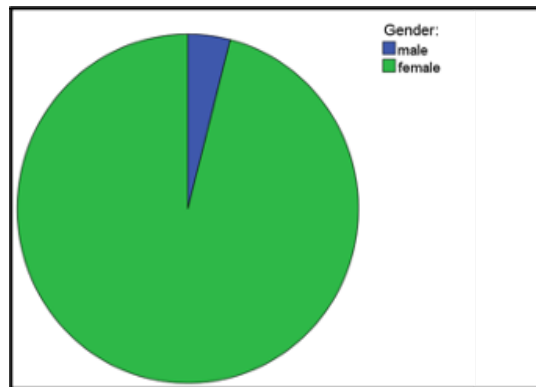


Figure 2. Gender of patients

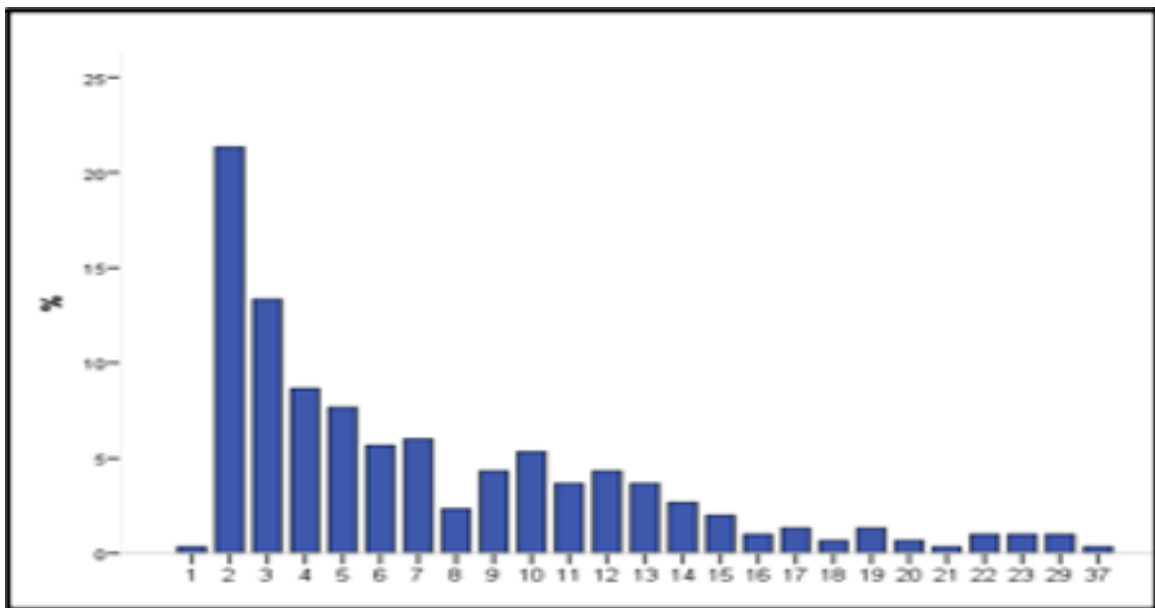


Figure 3. Number of laser sessions.

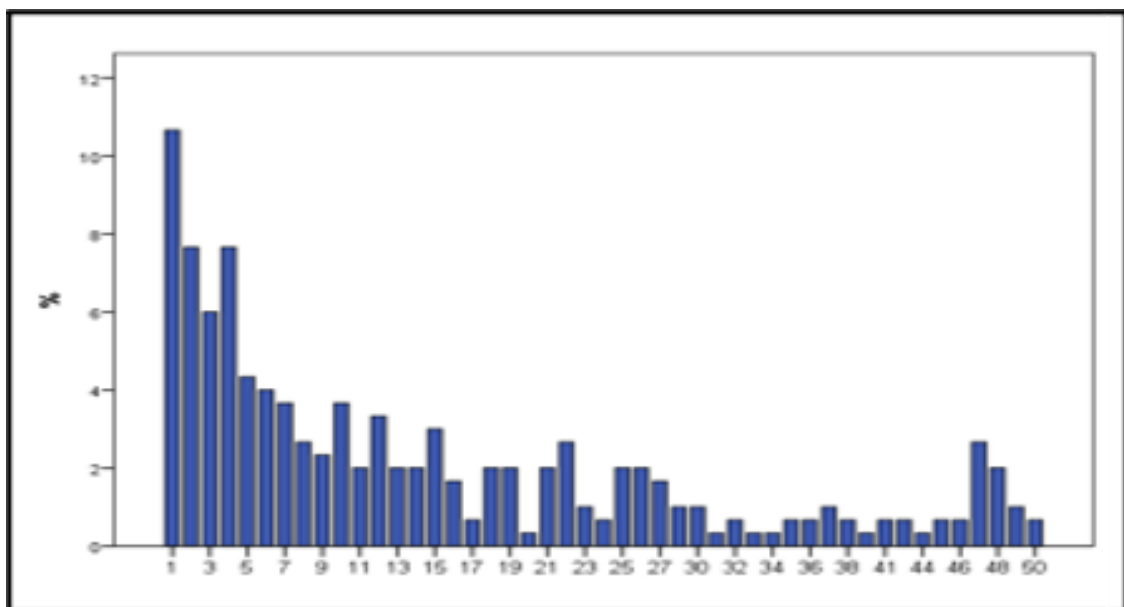


Figure 4. Duration of treatment (months).

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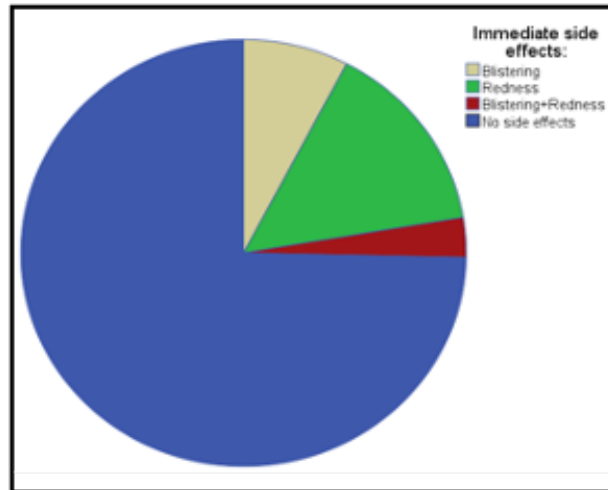


Figure 5. Immediate side effects.

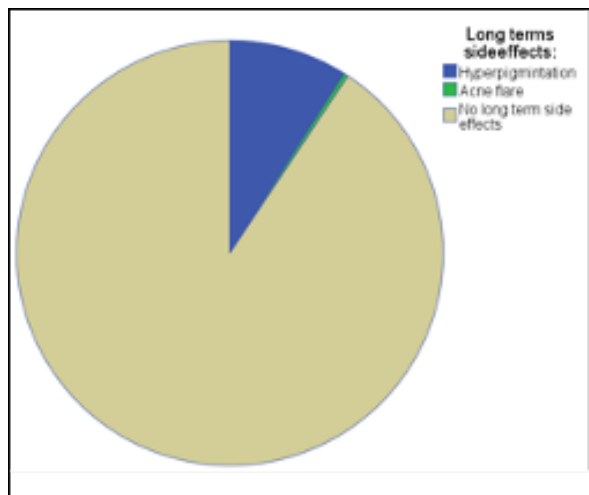


Figure 6. Long terms side effects

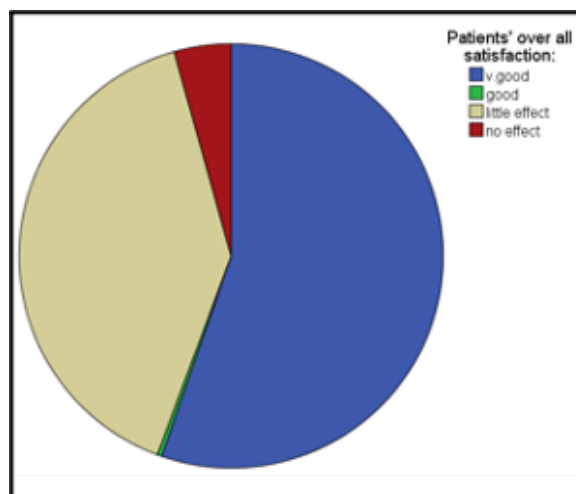


Figure 7. Patients overall satisfaction.

Table 1. Study variables correlations.

	Age of the Patients (P-value)	No. of sessions (P-value)
Immediate Side Effects	0.701	0.584
Long term Side Effects	0.836	0.457
Over all patients' satisfaction	0.286	0.121

DISCUSSION

Unwanted hair growth is a common aesthetic problem. Laser hair removal has emerged as a leading treatment option for long-term depilation⁽¹⁶⁾. The extended theory of selective photothermolysis enables the laser surgeon to target and destroy hair follicles, thereby leading to hair removal⁽¹⁷⁾. In our study, we tried to focus on the safety of this treatment technology for unwanted hair problems and the degree of patients' satisfaction, in addition to finding a possible association between these two outcomes with the age of the patient and number of sessions.

Regarding demographic characters of the study group, like age and gender was similar to a study conducted in Saudi Arabia, which showed that 90.5% of the patients were female but in our study was more (96%) and the most common age ranged between (20-40) years⁽¹⁸⁾, while in our study was wider (15-64), which may be because the other study was on many aesthetic procedures including Laser Hair Removal, while in our study was only for last mentioned.

In a study conducted on a mixed ethnic group, it was found that (15.63%) had burns, (6.25%) hyperpigmentation, (50%) hypersensitivity and skin irritation was observed in (9.38%)⁽²²⁾.

In our study, the incidence of side effects was much less in comparison to the above-mentioned study as most of the patients about (74.7%) did not show any side effects, while (14.7%) showed redness, and few of them showed blistering or combined both blistering and redness in (7.7%), and (3.3%) respectively. Hyperpigmentation reported in (9%) and acne flare were mentioned by (3%) of the patient. This can be explained by the ongoing improvement in both the quality of the machines and the experience of the laser users.

The incidence of both immediate and long term side effects was low and not related to the duration of treatment, number of sessions, or occurrence of side effects, while a study published in 2005, concluded

that patients who undergo more treatment sessions achieve a higher rate of hair reduction; although this may be concomitant with an increase in the incidence of adverse effects. The benefit of more laser treatments should be balanced with the risk of occurrence of side effects in each patient⁽¹⁹⁾.

But our conclusion did not agree with the above study may be due to the time difference between the 2 studies that led to many developments in this practice that resulted in a more satisfying and safe procedure.

The last and important finding of our study was about overall patients' satisfaction and as high as more than half of them were highly satisfied, and this fact was concluded by many previous studies^(24, 25).

In conclusion, the study, couldn't demonstrate a statistically significant association between the age and the number of sessions with patient satisfaction on laser-assisted control of unwanted hair. While an Iranian study published in 2016 found a significant correlation between age and the degree of patients' satisfaction. But our study result was similar to the mentioned study which found an insignificant correlation of patients' satisfaction with the number of laser session treatments⁽²⁶⁾.

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