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Effectiveness of Intense Pulse Light (IPL) in Management of Facial Hair in Hirsutism

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Original Research Article **Abstract:** **DOI:**

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Objective: To review the efficacy of Intense Pulse Light (IPL) in the treatment of unwanted facial hair removal in hirsutism patients. ***Study Design:*** Case series. Observational study. ***Place and Duration of Study:*** Department of Burn and Plastic Surgery, Dhaka National Medical College, Dhaka, from January 2022 to June 2024. ***Methodology:*** A total of 100 patients with hirsutism were included in this study, who were diagnosed by a dermatologist. Intense pulse light therapy was applied for five sessions, one month apart. The reduction in hair count was reviewed on three occasions, before the start of the treatment, before the start of the third session, and after one month of ending of the last session. Any adverse effects experienced by the patients were also recorded. ***Results:*** In the study, the age range is about 15-55 years, with 27.31 mean age; 15% of patients have >75% hair reduction, also 32% have <25%. Among all participants, 68% experienced mild to moderate side effects, while 62% reported a good level of satisfaction. ***Conclusion:*** Our study revealed that intense pulse light has been effective, well tolerated, with good patient satisfaction feedback in removing unwanted facial hair in the treatment of hirsutism.

Keywords: Hirsutism, Intense Pulse Light, Laser, Hair Removal.

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INTRODUCTION

Hirsutism is usually defined as excess terminal hair in a woman that occurs in a male pattern. Usually, this clinical condition is reported by females mostly secondary to some underlying medical pathology[1]. There could be multiple systemic conditions related to hirsutism, and managing them may decrease the facial growth of hair growth of affected individuals. Still, mostly local intervention has been required to remove or minimize the unwanted hair on the face [2]. Various local and systemic therapies have been in practice for this clinical condition [3].

Various modalities have been researched and used in clinical practice to manage unwanted hair of the face related to hirsutism. IPL can be one of them. Intense first night IPL was commercially launched as a medical device in 1994[4]. In the following years, multiple technical modifications allowed an easier handling, increased safety, and widened the spectrum of potential indications. IPL devices use flash lamps and computer-controlled capacitor banks to generate pulsed polychromatic high-intensity light. Electrical energy stored in the capacitor bank is passed through Xenon gas within a gas-discharge lamp so that bright light is emitted. Thus, electrical energy is converted into optical energy.

This study is determined to review the use of IPL in the treatment of hair removal in hirsutism patients in the setting of a Bangladeshi medical centre.

METHODOLOGY

This study was conducted at the Department of Burn and Plastic Surgery of Dhaka National Medical College Hospital in collaboration with the Skin and VD department of the same Hospital, from January 2022 to June 2024. As the treatment was offered to a selective number of patients, the study was conducted as a case series, and all the cases that were managed with IPL laser were included in the study. The non-probability consecutive sampling technique was used to gather samples for this study after proper informed consent.

Inclusion criteria: Female patients, who were the ages between 15 to 55 years old, and were diagnosed by a dermatologist as a case of Hirsutism, were included in the study.
Exclusion Criteria: Pregnant or lactating women, women with a tendency to develop hypertrophic scar/ keloid, photosensitivity, pigmentation, or any other adverse effects of previous such therapy, those with white hair, and those who underwent any form of treatment for the disease in the previous year were excluded.

Baseline Investigations were carried out beforehand, including the hormonal profile. IPL was performed standard protocol with a Fluence of 30 J/cm^2 [5]. A total of 5 sessions were done one month apart, and hair reduction was measured by counting the number of hair follicles in a 1 cm^2 area of the face. The 1st measurements were taken before the first session, and the second one at the beginning of 3rd session, and the final one after one month of the fifth or last session. All the results were recorded by both the patients and the researchers. Expert categorized based on reduction in the hair count[6]. Less than 25%, 25 -50%, 50 -75% >75%. Patients rated their satisfaction from 0 to 10, and > 6 as sufficient satisfaction for the procedure[6].

All statistical analysis was performed using Statistics Package for Social Sciences version 24.0 (SPSS-24.0), Microsoft Word, and Excel.

RESULTS

In the study, the age range is about 15-55 years, with 27.31 mean age; 15% of patients have>75% hair reduction, and 32% have <25%. Among all participants, 68% experienced mild to moderate side effects, while 62% reported a good level of satisfaction.

Table-I showed that side effects were seen in 60% of patients. Among all side effects, transient erythema (38%) and moderate pain (41.6%) were the most commonly experienced by the patients.

Table-I: Characteristics of Study Participants (n=100)

Characteristics	Frequency (%)
Age (years)	
Mean±SD Range (min-max)	27.31±4.662 years 15 years - 55 years

Hair Reduction at the end of three Sessions	
<25%	18
25-50%	28
50-75%	47
>75%	07
Common Side Effects	
Transient Erythema	25 (36.76)
Photosensitivity	03 (4.41)
Hyperpigmentation	05 (7.35)
Moderate Pain	28 (41.17)
Skin Burns	03 (4.41)
Others	04 (5.88)

Table-II showed that hair reduction, adverse effects and patient satisfaction were effective and tolerable.

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Table-II: Outcome of various Variables Studied in the final Analysis (n=100)

Factors Studied	Intense Pulse Light (n-100)
Hair Reduction	
<25% 25-50% 50-75% >75%	32 29 24 15
Patients Response	
Not Satisfactory Satisfactory	38 62
Presence of any Adverse Effect	
No Yes	32 68

FIGUER(s) of CASE (before and after IPL):

Case-01

Case-02

Case-03

Case-04

DISCUSSION

Hirsutism is one of the most stressful conditions for women, particularly for the younger age group. It can be idiopathic or can occur as a part of multiple metabolic or endocrine syndromes. Behboodi Moghadem *et al*. in 2018 conducted a detailed review. They concluded that no matter which tool is used, overall quality of life has been affected in many ways if the patient has been suffering from a condition that gives rise to unwanted hair on the face [7]. Alizadeh *et al*. 2017 conducted an interesting study in this regard where they instead of reducing hair growth as the outcome, they studied the overall quality of life after the laser treatment of Hirsutism. They concluded that laser therapy improves hirsutism and enhances the quality of life in such women[8]. Multiple treatment options have been available for managing hirsutism but the evidence is little for the best choice of our women. in this aspect we planned to review the efficacies of intense pulse light IPL in removing unwanted facial hair at the plastic surgery department of Dhaka National medical college hospital in collaboration with the skin and VD department.

Shrimal *et al* in 2017 concluded that the IPL-755nm is safe and effective in managing idiopathic facial Hirsutism[9]. Though our study had a smaller sample size, we found similar results.

In 2011, Nilforoushzadeh *et al*. conducted a trial and compared the Diode and Alexandrite lasers to manage hirsutism. They concluded that overall efficacy and patient satisfaction were significantly different in both groups [10]. Though our study was not comparative, we found that patient satisfaction was quite significant in IPL treatment (62%).

The common side effects of our patients were transient erythema, skin irritation, and long-standing hyperpigmentation. Thaysen-Peterson *et al* in 2017[11]. and Zaleskavet *et al*. in 2018 also summarized that common adverse effects of laser and IPL treatment include transient erythema, mild to moderate local pain, hyperpigmentation, skin irritation, skin burns, and skin hypersensitivity[12].

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Although there are some disadvantages of IPL like, inconsistence of emitted spectrum, weight of handpiece, large spot size, I'll focused light, requirement of gel application, direct contact of handpiece to the skin, the advantages of IPL are more, like lower purchase price, high skin coverage rate, high versatility, robust technology etc[13].

LIMITATIONS OF STUDY

The study draws its results from 100 patients, which may not fully capture the diversity of patient demographics that could benefit from IPL treatment for hirsutism. Another limitation is the lack of long-term follow-up, along with a significant patient dropout rate. Future studies with improved long-term follow-up and addressing these limitations may generate better results.

CONCLUSION

Our study revealed that use of IPL has been effective and tolerable in managing unwanted facial hair in women suffering from hirsutism.

Conflict of Interest: None.

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