



Comparative Study Between Normal Traditional Methods in Hair Removal and Recent Laser Technology

Hassan Jalal Aziz

General science department, Collage of Basic Education, University of Salahaddin, Erbil, Kurdistan Region, Iraq

hassan.aziz@su.edu.krd

ARTICLE INFO

Article History:

Received: 8/12/2021

Accepted: 15/3/2022

Published: Winer 2022

Keywords:

Hair removal, laser, classical, wound, injuries.

Doi:

10.25212/lfu.qzj.7.4.40

ABSTRACT

The types of laser instruments used for patients' treatment were: Cynosure Elite Laser, Epicare Alexnrite Laser, Candle Gentle Yag Laser hair removal machine, Diod Lser hair removal, Gentle Laser plus. The studies' goal is to comparing traditional hair removal methods (such as wet shave or waxing) with laser technique in order to conduct clinical trials. The findings of the first group, in which 165 people took part, revealed that pain produced by wound infection in the time following the process is significantly associated with the existence and severity of postoperative wound infection. When it comes to preoperative hair removal, namely after shaving, it is highly connected with the existence and severity of skin injuries of various ranks suffered during the procedure. The second group, which included 190 competitors (160 females, 30 males). The findings revealed a breakdown of the adverse effects that were noticed and documented during the course of the research. 44.1 percent of the population has skin sensitivity, 2.8 percent has skin irritation, 14.5 percent has erythema, 24.1 percent has burns, and 14.5 percent has hyperpigmentation, according to the study. Additionally, a comparison and contrast of ethnicity, as well as the effects of traditional and laser treatment methods, were included in the study. The samples, which were identified by ethnicity, were collected from several clinics around the state and compared to the

results of the study (which used traditional and laser methodologies) conducted in Erbil. There was no statistically meaningful variation between the two groups based on those assessments.

1. Introduction

Hair removal processes are techniques that are performed to remove hair from the human body. They are classified as follows: Among the most common therapies are the traditional moist shave, sugaring, and heated wax, cold wax, and epilation, as well as modern procedures like as IPL, SHR, or laser (photoepilation) for completely eliminating hair from the face and other areas. The most common causes for hair loss are sanitary, cosmetic, and religious concerns. Body hair provides essentially no role in humans, in comparison to the primates. For many people, body hair is considered to be a source of discomfort [1]. Permanent hair eradication of the entire body grew increasingly popular among sexually active people, influencing the development of today's aesthetic norms. This is developing a problem for men as well as this tendency continues. Particularly well-groomed and completely focuses on the elimination are the chest, abdomen, and intimate areas of today's established man, who can be found in public places. Hair removal from the legs has still been considered taboo for most men, despite the fact that many athletes use it to reduce air resistance or to make the healing of skin scratches more straightforward [2].

The traditional moist shaving approach is currently the most widespread form of hair removal, despite the fact that it has a number of downsides. Shaving foam is used to the treatment regions before shaving or shaving is performed while showering; nevertheless, the impacts of smooth skin does not persist for very long since even after a very short period of time, stubble returns to the treatment locations. In moreover, reddening, skin irritation, and ingrown hairs are possible side effects. Regular shaving also leads in expensive expenditures for razor blades, which grow blunt far too quickly when used on a regular basis. An incorrectly applied wet shave can result in cuts that are extremely uncomfortable, particularly in sensitive places. In this situation, consult your doctor.

The benefits of this procedure include the fact that it is simple, quick, and that razors are readily accessible in almost every drugstore. The downsides include the possibility of reddening and skin irritation, the necessity of repeating the therapy on a regular basis, and the possibility of cutting oneself [3]. The advantages of this method are that it is painless, that the treatment is straightforward, that it is quick, and that shaving blades are readily available at any drugstore. Brazilian waxing is a method of hair removal in the intimate area that is popular today. It can be used by both men and women. It includes techniques such as heat waxing (traditional waxing) and sugar paste (sugaring). In contrast to moist shaving, hair is not chopped, but rather is pulled directly from the root [4] during this procedure.

With the help of a wooden spoon, the wax material is practice on the skin. Only after wax has hardened, the hair is removed with a jerky motion in the opposite direction of hair growth. A soothing skin cream is used once the hair removal procedure has been completed successfully.

In addition, hair grows slower and thinner, resulting in stubble development after a lengthy period of time. The outcome takes numerous weeks (about 4 weeks between treatments). Treatments are reasonably inexpensive and there are numerous cosmetics salons available [5], not all of which are possible. Sugaring is a technique of hair removal that corresponds to the epilation group of procedures and is becoming increasingly popular in Germany. Sugar paste is typically created from a combination of sugar and lemon juice. The sugar paste is used at room temperature and does not need to be pre-heated, in contrary to the hot waxing method. It is possible to totally rule out treatment errors including burns produced by overheating wax.[6]

Some of the positive effects of this technique are as follows: hair grows slower and thinner, stubble development occurs after a long period of time, the results last some weeks (nearly 4 weeks between treatments), the treatments are very competitively priced, and there are numerous cosmetic salons available.[7]

Throughout a hot wax therapy, the wax is warmed until it is completely liquefied prior being placed to the skin. It is important to monitor the temperature of the wax to ensure that it does not become too hot, as this could result in severe burns. The wax is then spread to the appropriate area and smoothed out with a warm cloth. Paper or cotton tissues are now placed to it, and the wax is allowed to cure for a short period



of time. Once this is completed, the tissues are eliminated with a jerky movement in opposition to the growth of the hair. This will get rid of the hair and the wax [8]. This is an extremely unpleasant technique to endure.

Although wax is placed to the surface in the case of cold waxing, the cold wax is usually on completed cold wax strips and does not require heating prior to application. The possibility of a fire is eliminated. The cold wax strips are massaged to the skin in a circular motion. After a brief interval, the wax strips are yanked out of the mouth in a jerky motion, causing an uncomfortable sensation [9]. These approaches have the following advantages: Hair grows slower and thinner, and stubble development occurs after a long period of time, the effect lasts several weeks (about 4 weeks between treatments), treatments are extremely competitively priced, and there are numerous cosmetics salons to choose from. All of the methods mentioned above have the following drawbacks in common: Painful, the cure can only be performed with hair that is a few millimeters in length, it must be recurrent every 4 weeks, and there is no permanent hair removal [10, 11].

2. Laser Hair Removal

Laser hair removal is a relatively new technology that has emerged in recent years. New hair removal technology employs a number of steps, as well as the application of high-precision techniques, which is the laser's heat that recompenses and inhibits hair regrowth from occurring. Heat from the laser is directed at hair follicles, destroying them and inhibiting future hair growth. However, it is the most expensive, as well as the most long-lasting, of the hair removal options. Despite the fact that it is frequently touted as permanent, there will be some thin hair regeneration following the procedure. Laser hair removal could be conducted on most any part of the body, including the face. However, laser hair removal is ideally appropriate for smaller locations, including the bikini line and the face [12], because it necessitates numerous treatments throughout the course of numerous months before a significant drop in hair growth can be observed.

Laser hair removal is most effective when conducted by a dermatologist who is not only skilled in the usage of the equipment but also has a thorough understanding of the skin's anatomy. Lasers can readily cause skin harm in the hands of unskilled

practitioners, ranging from burns to color alterations. Most women see a 50 percent reduction in hair growth after six months of monthly treatments (when using the product) [13]. It may be necessary to do periodic maintenance treatments every couple of months in order to prevent regrowth.

When it comes to hair removal, laser hair removal is a therapy that is exceptionally effective at eliminating unwanted hair from all areas of the body, as well as safely and quickly eliminating undesirable hair follicles permanently, as opposed to all other traditional hair removal approaches. Permanent hair removal involves the destruction of germinated cells, which are responsible for the appearance and growth of hair. The only scientifically established method of eliminating these cells is to heat up the hair, as previously stated. This operation is made possible by the presence of a material known as melanin, which functions as an absorber of the pure red light created through a diode laser, making it conceivable. Specifically, melanin is responsible for converting that light into heat, which destroys merely the hair cells themselves and has no effect on the surrounding environment. With the cooling system that is unique in protecting the skin [14, 15], only powerful equipment with precisely defined perimeters, such as the Milesman (Laser Diode System), would be able to achieve permanent hair removal.

3. Methodology

In this study, we chose two groups of patients to participate:

1. The first group, consisting of 165 participants, had hair removal using traditional procedures, which was observed in Erbil beauty salons during a one-year period beginning on May 1, 2019. Tables 1 and 2 compare the efficacy of two types of classical hair removal methods, as well as the features of individuals who got wounds, injuries, and infections as a result of the procedure. The injuring was also ranked.
2. Participants in the second group, consisting of 190 people (160 females and 30 males), were followed up in Erbil laser clinics, specifically in the Harman, Bahar, Noor, and Alaa clinics. As demonstrated in figure 1, the adverse consequences of this task were noticed and examined in great detail, as a result of this research.

Figure 1 depicts a detailed breakdown of the adverse effects that were seen and documented in this investigation.

4. Results and Discussion

Table 1: A comparison of the effectiveness of two hair removal procedures.

Characteristics	Hair Removal Method	
	<i>Cream</i>	<i>Shaving blade</i>
<u>Elaborate of removal</u>		
Incomplete removal	70	53
	9	33
<u>Skin injuries</u>	76	63
	3	23
<u>Skin reaction from procedure</u>		
No reaction	76	84
Reaction (s) present	3	2

Table 2: Features of patients who acquired post-operative wound infections after undergoing surgery

<i>Patient</i>	<i>Infection Grade</i>	<i>Hair removal method</i>	<i>Degree of skin injury</i>
A	I	Shaving blade	No injury
B	I	Shaving blade	Large injury
C	I	Cream	No injury
D	II	Shaving blade	Single tiny injury
E	II	Cream	No injury
F	II	Shaving blade	No injury
G	II	Shaving blade	Various small injury
H	II	Shaving blade	Various small injury
I	II	Shaving blade	No injury
J	II	Shaving blade	Single tiny injury
K	II	Shaving blade	No injury
L	III	Shaving blade	Various small injury
M	III	Shaving blade	Various small injury

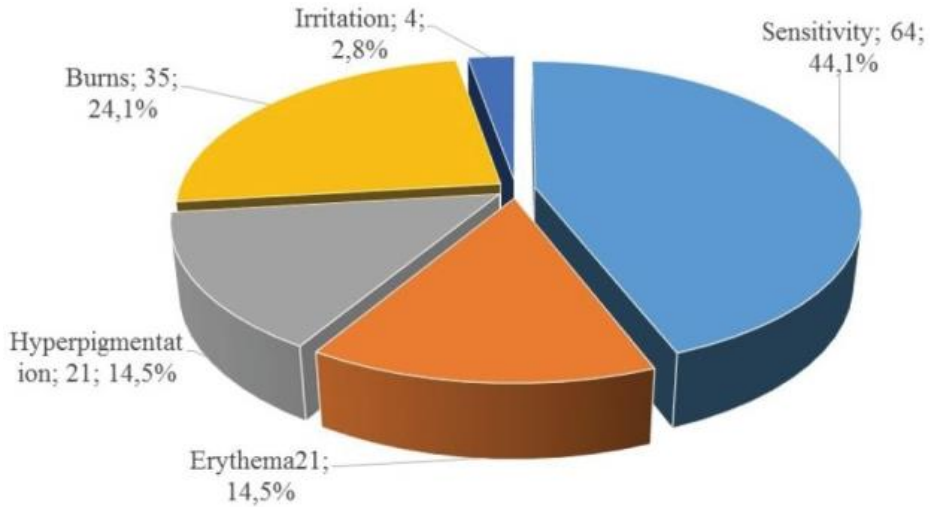


Figure 1. Complications associated with laser hair removal.

As shown in Table 1, there is a significant discrepancy in the outcomes of shaving between two classical procedures that have been chosen. Nine out of the 79 participants who had their hair removed using a cream had insufficient or no shaving done. There were three people injured out of the total of 76 participants (skin reactions). Participants 33 had insufficient hair removal as a result of using razors 86, according to the findings. Among the 86 participants, 23 suffered skin injuries as a result of a skin reaction.

Based on the technique of hair removal used, Table 2 depicts the rank of infection corresponding to the technique used. It was discovered that there were three sorts of harmful ranks: I, II, and III, which vary depending on the type of the classical technique used. It was discovered that the majority of those who participated in the razor approach suffered from a variety of injuries. The efficiency of a hair removal procedure in terms of entirely eradicating hairs would be considered in part while choosing a hair removal method. According to the outcomes of this research, cream depilation provided more complete hair removal in more cases than shaving with a shaving blade, which is the traditional way of hair removal.

Figure 1 depicts the percentage of volunteers who experienced distinct adverse effects after undergoing laser hair removal treatment in the laboratory. The most common side effects of laser hair removal includes :

- 1- Skin irritation ,temporary discomfort ,redness and swelling are possible after laser removal.
- 2-Pigment changes , laser hair removal might darken or lighten the affected skin.
- 3-People with darken skin may be more prone to lighter changes.
- 4-People with lighter color skin may be more likely expensing dark pigment changes those changes lend to side away with time.

It is observed that 44.1% of the population is subjected to senility (cream), 2.8% is subjected to irritation, 14.5% is subjected to erythema, 24.1% is subjected to burns, and 14.5% is subjected to hyper-pigmentation.

5. Conclusions

1-This analysis brought attention to the extent of skin injuries and postoperative wound infection that are closely associated with hair removal after shaving, as well as the technique of hair removal.

2- Also demonstrated in our work was that depilatory cream outperformed razor shaving for preoperative hair removal in our context. For further investigation of the association between postoperative wound infection and the method of preoperative hair removal seen in this study, we urge bigger population-based, multicenter, randomized controlled investigations.

3-This study demonstrates that there is a relationship between ethnicity and the occurrence of adverse effects after diode laser hair removal treatments in the pubic area. When compared to the groups of White and Asian participants, the groups of Black and Mixed-race participants experienced significantly more frequent numerous side effects. Side effects such as sensitivity, erythema, and burns have been reported. During the course of this trial, no harmful consequences were seen. As observed, the results of therapy in both approaches were dependent on the kind of skin; participants with white skin were more likely to have adverse effects than those with dark skin, according to the findings.

4-After doing research, it was determined that pretreatments and follow-up care were required in both traditional and laser hair removal procedures (including those performed under anesthesia).

References

- [1]. 1.National Audit Office 2004 (2004) Improving patient care by reducing the risk of hospital acquired infection: A progress report. Report by the Comptroller and Auditor General. HC 876, Session 2003–2004 London, The Stationery Office.
- [2]. Ratanalert S, Saehaeng S, Sripairojkul B, Liewchanpattana K, Phuenpathom N (1999) Nonshaved cranial neurosurgery. *SurgNeurol*51:458- 463.
- [3]. Tanner J, Woodings D, Moncaster K (2006) Preoperative hair removal to reduce surgical site infection. *Cochrane Database Syst Rev* 19: CD004122.
- [4]. Gil Z, Cohen JT, Spektor S, Fliss DM (2003) The role of hair shaving in skull base surgery. *Otolaryngol Head Neck Surg* 128: 43-47.
- [5]. Bruce J, Russell EM, Mollison J, Krukowski ZH (2001)Themeasurement and monitoring of surgical adverse events. *Health Technol Asses* 5:1-194.
- [6]. Tanner J and Parkinson H (2002) Double gloving to reduce surgical cross-infection. *Cochrane DatabaseSyst Rev* 3: CD00308.
- [7]. Tanner J, Swarbrook S, Stuart J (2008) Surgical hand antisepsis to reduce surgical site infection. *Cochrane DatabaseSyst Rev* 1: CD004288.
- [8]. Town G, Ash C, Dierickx C, Fritz K, Bjerring P, Haedersdal M. Guidelines on the safety of light-based home-use hair removal devices from the European Society for Laser Dermatology. *J EurAcadDermatolVenereol.* 2012;26:799–811.
- [9]. Anderson RR, Parrish JA. Selective photothermolysis: precise microsurgery by selective absorption of pulsed radiation. *Science.* 1983;220:524–7.
- [10]. Ito S, Fujita K. Microanalysis of eumelanin and pheomelanin in hair and melanomas by chemical degradation and liquid chromatography. *Anal Biochem.* 1985;144:527–36.
- [11]. Rogers CJ, Glaser DA. Treatment of pseudofolliculitisbarbae using the Q-switched Nd:YAG laser with topical carbon suspension. *Dermatol Surg.* 2000;26:737–42.
- [12]. Radmanesh M. Paradoxical hypertrichosis and terminal hair change after intense pulsed light hair removal therapy. *J Dermatolog Treat.* 2009;20:52–4.
- [13]. Alajlan A, Shapiro J, Rivers JK, MacDonald N, Wiggin J, Lui H. Paradoxical hypertrichosis after laser epilation. *J Am AcadDermatol.* 2005;53:85–8.

- [14]. Kontoes P, Vlachos S, Konstantinos M, Anastasia L, Myrto S. Hair induction after laser-assisted hair removal and its treatment. J Am Acad Dermatol. 2006;54:64–7. Shirkavand A, Ataie-Fashtami L, Sarkar S, et al. Thermal damage patterns of diode hair-removal lasers according to various skin types and hair densities and colors: a simulation study. Photomed Laser Surg. 2012;30:374–80.

دیراسه‌یه‌کی به‌راوورد له نیوان ریگای ته‌قلیدی (ئاسایی) و ته‌کنه‌لۆجیای تیشکی له‌یزهر بۆ لابردنی مووی زیاده :

پوخته:

مه‌به‌ست له‌م دیراساته‌بریتیه له به‌راوردیک له لادانی مووی زیاده به ریکای ته‌قلیدی (تراشینی ووشک یان به مادده‌ی شه‌مع) وه به‌راورد به ته‌کنیکی تیشکی له‌یزهر بۆ تاقیکردنه‌وه‌کانی کلینیکی وه ده‌رکه‌وت ئه‌نجامی ئه‌و کۆمه‌له‌یه‌ی یه‌که‌م که له 165 که‌یس بوو که ئه‌و ژانه‌ی (ئیشه‌ی) له ئه‌نجامی کرداری نه‌شته‌رگه‌ریه‌که په‌یدا ده‌بیت له دوا‌ی نه‌شته‌رگه‌ریه‌که په‌یوه‌ست ده‌بیت به نمره‌ی برینی دوا‌ی نه‌شته‌رگه‌ریه‌که که رووده‌دات پاش تاشینی مووه‌کان، وه کۆمه‌له‌ی دووه‌میش که پیک دیت 190 که‌یس که (160) یان له ره‌گه‌زی می وه (30) یان له ره‌گه‌زی نیر بوون به‌کارهینانی تیشکی له‌یزهر بۆیان.

ده‌رکه‌وت به شیوه‌یه‌کی دیار و باوه‌ریکراو که کاریکی لاوه‌کی له‌سه‌ریان بینرا له‌م دیراسه‌ته‌دا که ریژه‌ی 44.1% تووشی هه‌ستیاری (حه‌ساسیه‌تی پیست) بوون و ریژه‌ی 2.8% ئه‌ستوورن (هه‌لئاوسان) بوونی شوینی لیزهره لیدراوه‌که ده‌بن وه ریژه‌ی 24.1% تووشی سووتان ده‌بن وه ریژه‌ی 14.5% تووشی گۆرینی ره‌نگی پیست ده‌بن.

لیرده‌دا که به‌شیک له دیراسه‌ته‌که‌مان بریتی بوو له به‌راوردیک له نیوان کاریگه‌ری نیوان ته‌کنیکی ئاسایی و ته‌کنیکی لیزهر که زۆر نمونه‌مان وه‌رگرت له نیوان ژماره‌یه‌که له سه‌نته‌ره‌کانی لابردنی مووی زیاده که جیاوازیه‌کی زۆر به‌دی نا‌کریت له نیوان به‌کارهینانی هه‌ردوو ته‌کنیک به شیوه‌یه‌کی دیاریکراو.

دراسة تتفاضليه بين الطرق الاعتيادية وتكنولوجيا الليزر الحديثه في ازالة الشعر

الملخص:

اظهرت النتائج من ان الجروح التي تظهر بعد اجراء عمليات ازالة الشعر ترتبط بشكل مباشر مع الطريقه المتبعه في الازاله وخاصة بعد استخدام طريقة الازاله بالحلاقه حيث تم اختيار مجموعتين من اتمرضى : المجموعه الاولى اتخذت طريقة الحلاقه في ازالة الشعر مما تسبب بوجود التهابات وجروح في الجلد.

اما المجموعه الثانيه المتكونه من 190 مريض 30 منهم من الرجال والذين خضعوا لعملية ازالة الشعر بالليزر فقد وجد انخفاض في الاثار الجانبيه ولكن وجد ان:

44.1% قد تعرضو الى الشيوخه

2.8% قد تعرضو الى عدم الاستفاده

14.5% قد تعرضو الى الارثما

24.1% قد تعرضو الى الحروق

14.5% قد تعرضو الى اسوداد الجلد