

**INFLAMMATORY ACNE VULGARIS BETWEEN
LONG PULSED ND-YAG LASER & ISOTRETININ
(LOW DOSE), A-COMPARATIVE STUDY**

Thesis

A protocol for partial fulfillment of master degree in

Dermatology, Venereology and Andrology

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Introduction

Acne is a multifactorial inflammatory disease of the pilosebaceous follicle, predominantly involving the skin of the face and trunk. The pathophysiology of acne is slowly unraveling, and although many factors remain undetermined, a better understanding of the mechanisms involved has led to an improvement in acne management over the last decade. Four key factors have been identified in the etiology of acne: increased sebum production, follicular hyperkeratinization, colonization of the pilosebaceous unit with *Propionibacterium acnes* and the production of inflammation. Acne needs to be managed aggressively from the outset using a combination of treatments directed against each of the relevant factors. However, defining optimum treatment strategies remains difficult as significant variability exists between individuals, both in terms of clinical presentation and response to treatment. **(Laura J Savage; Alison M Layton,2010)**

Medical therapy remains the gold standard for the treatment of acne vulgaris. As clinicians, we are fortunate to have at our disposal, a substantial range of therapeutic agents (both topical and systemic) to offer our patients. Because of the complexities involved in successfully managing acne, therapeutic advances that offer shortened response times, and simplified treatment regimens are constantly being explored. Lasers and other light sources, as well as photodynamic therapy (PDT), are newer therapies that are gaining a great deal of support. **(M. H. Gold,2008)**. Topical antimicrobial agents or topical retinoids are used commonly as first-line agents for the management of mild-to-moderate acne vulgaris. Their combination significantly enhances anti-acne efficacy and leads to a faster onset of clinical improvement. In severe or refractory cases, the combination of nonantibiotic topical agents with systemic antibiotics (doxycycline, minocycline, tetracycline, lymecycline and macrolides), which work via antimicrobial, anti-inflammatory and immunomodulatory modes of action, is necessary. Other systemic acne treatments include hormonal therapies (anti-androgens, combined oral contraceptives and glucocorticoids) or oral isotretinoin. **(Anja Thielitz, Harald Gollnick, 2009)**. Conventional treatments for acne tend to be inconvenient and associated with side-effects and this has prompted a search for more acceptable therapies. Acne often improves after exposure to sunlight, and this observation has led to the development of laser and other light therapies. **(F.L. Hamilton, J. Car et al. , 2009)**

Isotretinoin (13 cis-retinoic acid, Accutane®, Roaccutane®) is a naturally occurring substance which, since its introduction in 1982, has revolutionized acne therapy. Isotretinoin (Accutane) is a medicine that revolutionized the treatment of acne. Accutane belongs to the family of medicines called retinoids, which are similar to vitamin A. Accutane, like other retinoids, works by altering DNA transcription. This affect decreases the size and output of sebaceous glands. It also makes the cells that are sloughed off into the sebaceous glands less sticky, and therefore less able to form blackheads and whiteheads (comedones). It also reduces the number of bacteria in the sebaceous gland and on the skin surface. **(Stuart Maddin,2004)**

It is the only anti-acne agent that affects all four of the known major etiologic mechanisms: sebum production, comedogenesis, Propionobacterium acnes (P. acnes) colonization of ductal and skin surface, and monocyte chemotaxis-induced inflammation. This may explain its unique ability to sustain long term treatment-free remissions and, in some cases, a permanent remission or "cure" can be achieved. **(R. A. Kunynetz, 2004)**. Isotretinoin is indicated for nodular acne or severe acne that is unresponsive to conventional therapies. The usual dose is 0.5 to 1.0 mg/kg/day for 20 weeks, or a cumulative dose of 120 mg/kg. As side effects are dose-related, the idea of low-Low-dose isotretinoin is an attractive proposition for the treatment of moderate acne. **(Mary Wu Chang, 2006)**

While oral isotretinoin, provides the most effective acne treatment for moderate to severe inflammatory acne. However, because of its teratogenicity and adverse event profile, cautious use of this medication is required. **(The British Journal of Dermatology, 2010)**

In recent years, light-based treatments for acne have gained popularity, and utilize light with different properties (i.e., wavelength, intensity and coherent/incoherent light). Lasers are the most common light sources utilized in acne therapy, which produce a high-energy beam of light of a precise wavelength range. **(Laura J Savage and Alison M Layton,2010)**

Recent reports demonstrated that sequential treatment with laser- and light-based devices lead to a clinical improvement in acne. The rapid clearance of acne lesions is particularly of interest to patients and physicians. These devices include a 532 nm potassium titanyl phosphate laser, a 585 nm pulsed dye laser, a 1450 nm diode laser, a 1540nm Er : glass laser, a 1320 nm Nd : YAG laser, blue light and photodynamic therapy. **(John Wiley & Sons,2009)**

To date, reports on the safe and effective treatment of severe inflammatory facial acne with the low-fluence 1064 nm Nd:YAG laser are limited. The authors report a case of treatment for severe inflammatory acne in a pregnant Asian female (Fitzpatrick skin type IV) with the low fluence 1064 nm. Nd-YAG laser. These findings suggest that this modality may be a safe, effective, and well-tolerated alternative for patients with acne who have contraindications to the use of systemic anti-acne therapies. (Jason S. Ballin, Nathan S. Uebelhoer, 2009)

There's almost no previous comparative study between long pulsed ND-YAG laser 1064 nm. and low- dose isotretinoin on inflammatory acne vulgaris till now.

Aim of the Work

The aim of this study is to compare a two common different lines in the treatment of inflammatory acne (isotretinoin & Nd-YAG laser 1064nm.)

Patient & Method

Inclusion criteria:

30 patient with inflammatory acne ,collected from Ain Shams University Hospital & El Salam Sp. Hospital clinics. All patients will be subjected to:

1. History taking; including a detailed medical history of the disease.
2. Full clinical examination.
3. Dermatological examination

The patients will be subdivided into two groups (15 patients in each group):-

➤ Group 1: Laser treatment

will include **15** patients with inflammatory acne vulgaris,will be subjected to Nd-YAG laser 1064nm. As a treatment with settings : spot size 5mm.,energy 50jole. And frequency 1mHz.

Frequency of sessions: **3** sessions with **3** weeks apart from each other.

➤ **Group 11: Isotretinoin**

Low dose isotretinoin for 3 months.

➤ **(patient must stop any previous line of treatment for at least 1 month)**

Exclusion criteria:

Comedonal lesions.

Under treatment.

The thesis will include

- Introduction
- Aim of the work.
- Review of literature.
- Patient & Method.
- Results.
- Discussion.
- Conclusion.
- Recommendation.
- Summary.
- References.
- Arabic summary.

References

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