

Intensive Pulsed Light (IPL), A New Hope For Rosacea Among Iraqi Patients

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Abstract

Rosacea is a chronic disease associated with an inflammatory process about which very little information is known. It is often a relapsing disorder, and long-term treatment is generally required. This study is a prospective therapeutic study design. The aim of this study is to evaluate the therapeutic efficacy of Intensive Pulsed Laser (IPL) as a treatment option among rosacea patients. Twenty eight patients (twenty two females and eight males) suffered from mild to severe rosacea presenting to private dermatological specialist clinic and the outpatient clinic of dermatology in Merjan medical teaching hospital, Hilla, Iraq were assessed about the efficacy of using IPL as a treatment option for their rosacea symptoms during a period from April 2013 to February 2014. IPL treatment sessions were performed twice monthly for three consecutive months. Patients were evaluated by digital photography, dermatologist clinical evaluation and clinician and patient assessment through 10 point Visual Analogue Scale (VAS). The clinical evaluation of IPL response following the three months period of the study showed that, nearly most of patients had good to excellent improvement of their rosacea symptoms. It appeared that IPL was an effective treatment option for rosacea representing a new category of therapeutic opportunity for the rosacea patient.

Keywords: Rosacea, inflammatory, IPL, VAS.

الخلاصة

مرض الوردية هو أحد الأمراض المزمنة المرتبطة بحالة التهابية لا يعرف إلا القليل جداً حولها. وغالباً اضطراب انتكاسي، والعلاج الطويل الأمد مطلوب عموماً. أن الهدف من هذه الدراسة تقييم الفعالية العلاجية لليزر كثيف النبضة (IPL) كخيار علاجي بين مرضى الوردية. التصميم الدراسي هو دراسة علاجية محتملة. يعاني المرضى الثلاثين (اثنتان وعشرين إناث والذكر ثمانية) من مرض الوردية المعتدلة إلى الشديدة المراجعين إلى عيادة أخصائي الأمراض الجلدية والعيادة الخارجية للأمراض الجلدية في مستشفى مرجان التعليمي الطبي، الحلة، العراق. قيمت حالتهم حول فعالية استخدام الليزر كثيف النبضة (IPL) كخيار علاجي لأعراضهم المصاحبة للوردية خلال الفترة من نيسان/أبريل عام ٢٠١٣ إلى ٢٠١٤ شباط/فبراير. دورات العلاج ب (IPL) أجريت مرتين شهرياً لمدة ثلاثة أشهر متتالية. وتم تقييم المرضى بالتصوير الرقمي، وتقييم الأمراض الجلدية السريرية والطبية وتقييم المريض من خلال مقياس التماثلية البصرية ذي العشر نقاط (VAS). وأظهر التقييم السريري لاستجابة (IPL) بعد فترة ثلاثة أشهر من الدراسة، أن معظم المرضى تقريباً قد تحولت حالتهم من جيدة إلى ممتازة فيما يخص أعراض الوردية. وبدأ أن (IPL) هو خيار علاجي فعال للوردية الذي يمثل فئة جديدة من الفرص العلاجية لمرضى الوردية.

الكلمات المفتاحية: مرض الوردية، التهابية، الليزر كثيف النبضة، مقياس التماثلية البصرية ذي العشر نقاط.

Introduction

Rosacea is a chronic disorder affecting the facial convexities, characterized by frequent flushing, persistent erythema and telangiectasia, interspersed by episodes of inflammation during which swelling, papules and pustules are evident [Van Zuuren *et al.*, 2011; Burns *et al.*, 2010].

Rosacea is a common disease in fair-skinned individuals [Culp, and Scheinfeld, 2009]. Even so it remains a controversial topic in dermatology, largely because of its uncertain pathophysiology and clinical variation [Wolff *et al.*, 2008]. It affects perhaps 10% of adults [Taub and DeVita 2002], and is not uncommon problem in Iraqi patients [Naseer, 2009]. It is mainly a disease of females, but often most severe in men. Etiology of rosacea is still not well determined although many theories have been

postulated[Taub, 2003; Kozarev, 2011]. It has multifactorial etiology includes genetic and vascular elements, climatic exposures, pilosebaceous unit abnormalities, and possibly microbial organisms [Castello.2012], and antimicrobial antibodies [Reszko and Berson. 2011]. It often starts in the second or third decade of life [Harvey, 2007]. Propagating factors were studied in all patients and were mainly: emotional tension, heat exposure, [mainly cooking fire, hot foods and drinks] and sun light exposure[Naseer , 2009; Sloan, 2011].

Although rosacea is a common skin condition, the treatments currently available are not satisfactory [Papageorgiou *et. al*, 2008]. There are some treatment options that can bring the condition under control[Joanne ,2007]. Conventional treatment with oral and topical antibiotics is often only partially successful. They have systemic side effects and can take weeks to be effective. Medication-based treatments can also be dangerous for women who are pregnant or nursing[Taub and DeVita, 2002]. Intense pulsed light (IPL) lasers are used to treat a wide variety of conditions apart from Rosacea such as red birthmarks, pigmented skin lesions, thread veins and unwanted hair [Odom *et. al*, 2009]. Laser technology operates on an extremely condensed narrow beam that must deliver a lot of energy within a short time. The active IPL energy is distributed equally to a large area and the temperature on the skin will be 70°C at most. This allows deep penetration of the light into the skin with no damage to its surface [Joanne ,2007]. It may be used adjunctively with topical and oral rosacea regimens for faster and more complete symptom resolution [Wolff *et. al*, 2008]. Though a novelty just a few years ago, the use of lasers to treat rosacea has become mainstream, and it really should be a first-line therapy[Winnington, 2010]. IPL emits light at variable pulse durations, intervals and wavelengths[Bryld and Jemec, 2007]. Although laser treatment for rosacea has been available as a treatment option for about 10 years, the therapy is underused and too often misunderstood [Nemec.2006]. IPL can be used for the treatment of rosacea [Sharquie *et. al*, 2006]. It is a unique way to deliver energy to a predetermined target. IPL light turns into energy when applied by pulse to the skin. The use of IPL at specified parameters provides individualized optimal therapy for the treatment of rosacea patients [Kassir *et. al*, 2011]. IPL may also impact rosacea by inducing fibroblasts to increase dermal collagen production, perhaps achieving some degree of dermal remodeling and rejuvenation [Wolff, *et. al*, 2008].

The success and tolerability of laser therapy for rosacea have been improved by modified pulse duration parameters and by advances in epidermal cooling mechanisms[Van Zuuren *et. al*, 2011]. So, this study is conducted in order to evaluate the therapeutic efficacy of IPL as a treatment option among rosacea patients.

Materials and Methods

This study was a prospective therapeutic study design. Thirty patients (22 female and 8 males) of all skin types presenting to private dermatological specialist clinic and the outpatient clinic of dermatology in Merjan medical teaching hospital, Hilla, Iraq seeking a treatment for their mild to severe resistant rosacea, were enrolled in this study during a period from April 2013 to February 2014. Two female patients did not complete their follow-up visits, so the 28 remaining were evaluated.

A full clinical assessment regarding type of rosacea, flushing, erythema, and itching was taken for each patient. And a full questionnaire was completed for all of the patients contained medical history, age at diagnosis, duration of rosacea, previous medications or other interventions, beside the common socio-demographic information.

The Intense Pulsed Light (IPL) device was utilized with refrigerated gel, 1-4 treatment sessions performed monthly (average 2 treatments per month) on these patients, the used IPL parameters were: wave length 585nm, energy 30-35J, pulse delay 14-15 msec., pulse duration 4-5 msec., spot size 15x50 mm, pulse mode 1,2,3, cooling system was water, cold air, and cooling gel.

Treatment parameters were set according to the clinical condition and skin type. The therapy was performed without any anesthesia.

Patients were evaluated by: 1) digital photography by using Sony DSC-W510 cypershot camera with 4 optical zooming. 2) dermatologist clinical assessment as poor (up to 25% clearance), moderate (26-50% clearance), good (51-75% clearance) and excellent (76-100% clearance) response. 3) patient assessment through 10 point visual analogue scale (VAS).

The targeted points that patients were subjected to scale them on 10-points VAS were that: the severity of rosacea symptoms, patient satisfaction, reduced redness, reduced flushing and improved skin texture, and any acneiform breakouts. These clinical evaluation and digital photography were performed at baseline, prior to each treatment and at 3-months follow-up.

Inclusion criteria: Adult rosacea patients with papulopustular or erythematotelangiectatic rosacea lesions with any Fitzpatrick skin types.

Exclusion criteria: Ocular lesions, pregnant or breastfeeding, malignant disease, severe ocular rosacea or severe flare-up reaction in the past, previous treatment of rosacea within 4 weeks prior entry into study, actinic damage, steroid dermatitis, contact dermatitis, intake of isotretinoin or other photosensitizers, local application of cytostatics (busulfan, 5-fluorouracil), professional exposure to dyes, current use of warfarin, acetic-salicylic acid or vasodilators which increase the blood flow.

Post-operative treatment instructions included complete restriction of sun exposure, avoidance of blood thinning medications and rigorous application of sun block creams.

Results

Thirty patients (twenty two females and eight males) suffered from mild to severe facial rosacea were assessed about the efficacy of using IPL as a treatment option for their rosacea symptoms in a three months course therapeutic trial study design.

Socio-demographic data showed that, male: female ratio was 1:4, average age of onset of rosacea was 23 years, the mean duration of disease for these patients was 6.5 years. The patients' age range was 28-62 years (the mean age being 46 years). The most common reasons for seeking medical advice cited by rosacea patients were ordered in to: redness, flushing, and acneiform breakouts.

To assess the efficacy of IPL for treatment of rosacea, twenty eight rosacea patients are included in this study, twenty two women and eight men, mean age 46 years during three months treatment period and another three consecutive follow up period. The treatment employed is IPL session administered on the face. Average treatments sessions are 2 monthly and 6 totally after three months of the study duration. Digital photographs were assessed by a dermatologist. Clinical assessment is employed for the evaluation of the response to IPL therapy. While patients assessments are also made using a 10-point VAS. Outcome measures are repeated at the baseline, after each session during the 3 months of treatment, and then monthly throughout three months period of follow up.

The clinical evaluation of IPL response following the three months period of the study showed that, 24 out of 28 patients had obvious improvement or clearance of their rosacea symptoms (14 patients got good improvement and 10 got excellent

improvement). The clinical assessment that was performed by a dermatologist demonstrate an average of 62% patients experience good improvement in their rosacea symptoms achieved within one single treatment session, and 88% of patients got excellent improvement with subsequent treatments sessions. At the same time following an average of 6 treatment sessions, 90% of patients had reduced redness, 78% noted reduced flushing and improved skin texture, and 64% noted fewer acneiform breakouts.

The patients' VAS scores were comparable; showing that the severity of rosacea symptoms was reduced on an average by 4.5 points on the 10-point VAS, whereas patient satisfaction elevated from a mean of 3.5 after the first session to about 8 after three months period of study.

These results were sustained throughout follow up months. Side effects were mild and transient, including transient erythema and mild edema, those did not obligate impeding therapy.

Discussion

Rosacea is a common skin condition but the treatments currently available are not satisfactory [Papageorgiou *et. al*, 2008]. Patients with rosacea often get to a plateau in their medical treatment. So when presented with an option to improve upon this, most are eager to try a new treatment [Taub and DeVita, 2002]. Many practitioners fail to realize the importance of treating the range of signs and symptoms associated with rosacea which can be treated successfully with lasers or IPL, it appears that awareness of this is not widespread among patients and even physicians [Nemec.2006].

Rosacea may vary substantially from one patient to another, and treatment must be tailored by a physician for each individual case [Taub and DeVita, 2002]. IPL is attracted to the oxyhaemoglobin, and can help to shut down the blood vessels that contribute to skin redness [Sharquie *et. al*, 2006]. It is believed that the light from IPL has two actions that help in Rosacea. Firstly red thread veins absorb the light energy, this makes them hot. This damage encourages the body to reabsorb them, improving the appearance. Secondly the light energy warms the collagen fibers in the skin this stimulates new collagen and collagen remodeling, this improves the support of the small blood vessels which helps to delay the development of more thread veins [Papageorgiou, *et. al*, 2008; Schroeter *et. al*, 2005]. Evaluation results of IPL efficacy among rosacea patients find that patient satisfaction was almost excellent for most patients according to the VAS scale giving an average of 4.5 points elevation after treatment period. This satisfaction is reflected on the clinical ground as an improvement of rosacea symptom which is significantly noticed both by comparing the consecutive digital photography and by clinical dermatological assessment.

This high improvement rates of rosacea symptoms after IPL therapy presented in this work was confirmed by some previous studies viewing that, although current treatment modalities for rosacea are not satisfactory, IPL may have a significant although underestimated role in the treatment of rosacea symptoms [Papageorgiou, *et. al*, 2008]. In one study of 63 patents with telangiectasia owing to rosacea that were treated with IPL concluded that IPL is an effective tool in achieving meaningful and lasting rosacea clearance. The study find a mean clearance of 77.8% was achieved and is maintained for a follow-up period averaging 3-6 months [Schroeter *et. al*, 2005]. Another study was performed in order to detect the effect of IPL application with simultaneous topical antibiotics in inflammatory rosacea and to assess the efficacy of IPL therapy in routine treatment of rosacea. In all patients, significant reductions in rosacea symptoms were observed [Nemec.2006].

An additional verification to the high efficacy of IPL as a treatment option for rosacea found in this study is cited by a previous two studies are performed to assess the efficacy of Intense Pulsed Light (IPL) for treatment of stage I rosacea (flushing, erythema and telangiectasia), it was clear that after few sessions of IPL therapy, there was a significant reduction of the erythema and redness values especially on the cheeks and the chin. A lot of patients report reduced flushing and improved skin texture, and 72% noted fewer acneiform breakouts. There were no complications or adverse effects [Papageorgiou, *et.al*, 2008; Kassir, *et. al*,2011]. One comparative study on a non-pharmacologic treatment for rosacea is identified, showing an overall improvement of rosacea after IPL treatment [Bryld and Jemec , 2007].

In recent years phototherapy and laser therapies have been gaining popularity as treatments of rosacea-associated erythema and telangiectasias. In a study of 34 patients with rosacea, IPL treatment resulted in generally high rates of improvement in most of patients. [Reszko and Berson, 2011]

Conclusion

It appears that IPL is an effective treatment option for rosacea, representing a new category of therapeutic opportunity for the rosacea patient.

More studies are needed, not only to compare the effectiveness of various therapies and their mechanisms of action, but also to improve understanding of the etiology and physiology of rosacea itself.

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