

February 11, 2013

Dear Editor,

Please find enclosed the edited manuscript in Word format (file name: 7003 edited.doc) that has been corrected according to the comments in your last correspondence.

**Title:** A review of Laser and Light Therapy in the treatment of Oculofacial Pathology

**Authors:** Dimitra M. Portaliou MD, Sophie D. Liao MD, Rebecca A. Shields MD, Wendy W. Lee MD

**Name of Journal:** *World Journal of Ophthalmology*

**ESPS Manuscript NO:** 7003

Below we describe the changes we have made:

**Reviewer 1**

**Comment:**

*The manuscript entitled "A review of laser and light therapy in the treatment of functional ophthalmic pathology" is a well written, concise review of the treatment of oculofacial pathology, such as vascular lesions, dyspigmentation, scars, ect. by use of non-surgical methods. The authors give brief description of the usage, possible side effects and outcomes of the treatment with intense pulsed light (IPL) and photodynamic therapy (PDT), light-emitting diode devices, as well as ablative and non-ablative lasers. It is a short, interesting and informative manuscript. I have only*

*one comment and suggestion: little change in the title - "functional ophthalmic pathology" means that the authors would comment on ocular function. I suggest - "A review of laser and light therapy in the treatment of oculofacial pathology".*

**Authors' Response:**

We would like to thank the Reviewer for his comments. We agree and therefore we have changed the title of the manuscript as proposed.

**Reviewer 2**

**Comment:**

*The article is a well written concise review of application of lasers as an alternative to the traditional medical and surgical treatments. It gives a new approach to treatment of pathologies in periorbital area like depigmentation, telangiectasis etc. It gives a broad view of the types of lasers available and the variety of conditions they can be used for. The topic of interest is a relatively new area and has a lot of scope. The title and abstract aptly outline the intended discussion. The article can be made more descriptive and informative by outlining in detail the indications of each type of laser and also the absolute and relative contraindications. It can be made more useful for the clinicians if a note on the incidence and management of possible complications is made and also if the safety measures for the use of lasers are outlined. It will also be more appealing if any studies done in the respective areas are quoted and clinical photographs are added in the manuscript.*

### **Authors' Response:**

We would like to thank the Reviewer for his comments. The indications for each type of laser are listed in the Table that accompanies the manuscript.

The absolute and relative contraindications have been included in the manuscript as follows: Page 5, 2<sup>nd</sup> paragraph, line 9: “Zandi et al<sup>[10]</sup> investigated the use of IPL for hair removal and proved that it is limited to pigmented follicles, as the target chromophore is melanin. The target chromophores for IPL also restrict its use primarily to patients of lighter skin types. Because the light is absorbed into pigment in the skin, patients with Fitzpatrick skin types V or VI are not good candidates for IPL use, and patients with skin type IV may require placement of a test spot before IPL treatment is considered.”

Page 6, 2<sup>nd</sup> paragraph, line 12: “Contraindications are rare and limited to some specific photodermatoses as well as allergies to ALA and Me-ALA. Pigmented lesions are not indicated for PDT, as melanin is a fluorescence quencher and may also inhibit light penetration.<sup>[16]</sup>”.

Page 8, 3<sup>rd</sup> paragraph, line 1: “Absolute contraindications for laser treatment include active acne, deep acne pits or picks, and isotretinoin (Accutane) use in the past 2 years. Similarly, patients with reduced adnexal structures (eg, scleroderma, irradiation or burns) are poor candidates. History of herpetic infection is a relative contraindication only because most patients do not know their true status. Diseases with koebnerizing features, such as psoriasis or vitiligo, are also considered relative contraindications. Smokers are not excluded as treatment candidates.<sup>[18]</sup>”

At the Reviewer's suggestion, the investigators who have worked on the studies mentioned are quoted in the manuscript.

Lastly, a paragraph on Laser complications and their management has been added on page 11 as follows: “Although lasers target specific chromophores, the surrounding scatter and the resulting thermal effect could cause collateral damage <sup>[43]</sup>. While the main tissue chromophores are targeted, other adjacent structures that are also rich in these chromophores are susceptible to inadvertent damage.

Laser complications can range from mild eyelid swelling and erythema, skin infections, hypo and hyper pigmentation to accidental corneal injury and potentially blinding macular injury. <sup>[44, 45]</sup>

Laser and light injury can be prevented if certain guidelines are followed such as eye protection during treatment for the patient, the operator, the observer and the assistant. Also, laser warning signs must be placed at the entrance of the laser treatment room when lasers are operating; adequate laser safety training for personnel must be provided. Potential injury to the surrounding tissues can be minimized by adjusting the treatment parameters appropriately, using cooling devices during the procedure, applying ice packs after the procedure, and elevating the head of the bed. <sup>[46]</sup>,

### **Reviewer 3**

#### **Comment:**

*This manuscript entitled “A review of laser and light therapy in the treatment of functional ophthalmic pathology” was to review the laser and light therapy modalities to treat oculo-facial pathology included the use of intense pulsed light (IPL) and photodynamic therapy (PDT), light-emitting diode devices, as well as ablative and non-ablative lasers. They concluded that understanding appropriate usage, side effects, and outcome is before treating functional and cosmetic issues. This is an*

*interesting, however, authors seems did not categorize and analyze very well. It seems can't offer us an important information to authors. I suggest authors to modify the Table 1 as 5 categories: IPL, PDT, Ablative lasers, Non-ablative lasers, and Fractionated Laser Devices. Then add the type of laser or light underlie. Besides, I hope author can add advantages and disadvantages of each instruments behind application.*

### **Authors' Response:**

We would like to thank the Reviewer for his comments. We have modified the Table in accordance with his suggestions, as follows:

<b>Type of Laser/Light</b>	<b>Specific Type</b>	<b>Tissue Target Chromophore</b>	<b>Applications</b>	<b>Advantages</b>	<b>Disadvantages</b>
IPL		Hemoglobin, Melanin	Telangiectasias, pigmented lesions, hair removal, skin resurfacing	Not invasive/Not a laser/Light based	Not an option for darker skin types
PDT			Fine wrinkles, telangiectasias, hyper pigmentation	Treatment of specific areas, no damage to surrounding tissues	Pain during treatment
Ablative	CO <sub>2</sub>	Water	Skin resurfacing, scars, lesions	Excellent Results, especially in skin resurfacing	Prolonged postoperative period, increased risk for side effects (erythema, dyspigmentation)
	Er:YAG	Water	Wrinkles		
	Diode	Melanin	Hair removal, resurfacing		
	QS Nd: YAG	Melanin	Tattoo removal, pigment lesions		
	QS alexandrite	Melanin	Tattoo removal, pigment lesions		

Non Ablative	QS ruby	Melanin	Tattoo removal, pigment lesions	Less aggressive, Low risk for side effects	Less effective when compared to Ablative lasers
	QS frequency-doubled Nd: YAG	Melanin, Hemoglobin	Pigmented lesions, red tattoos		
	Pulsed dye (green)	Melanin, Hemoglobin	Pigmented lesions, red tattoos, hemangiomas		
	Argon	Melanin, Hemoglobin	Telangiectasias, PWS		
Fractionated	Ablative	Water	Dyspigmentation, acne, traumatic scarring, rhytides, skin resurfacing	Quick recovery	Erythema, edema, hyper- hypo-pigmentation, herpes simplex viral reactivation, bacterial infection
	Non ablative	Melanin, Hemoglobin	Melasma, acne scars, hair removal, skin resurfacing		

**Reviewer 4**

**Comment:**

*This is a well-written article. We hope to see similar research in future.*

**Authors’ Response:**

We would like the Reviewer for his comment.

Thank you for the constructive suggestions proposed.

Sincerely

Wendy W. Lee MD