

IPL FOR THE OCULAR SURFACE



Six things you should know about intense pulsed light.

BY SCOTT E. SCHACHTER, OD

There is increasing awareness surrounding intense pulsed light (IPL) therapy in the eye care community, particularly in the realm of ocular surface disease. Practitioners are realizing the potential healing powers of this treatment modality.

Let's take a closer look at the technology, its origins, its evolution into the ophthalmic world, and the research that supports its effectiveness and safety. This article presents six things you should know about this promising technology.

1. IT'S A LIGHT, NOT A LASER

Lasers emit single-wavelength, coherent, collimated light energy. IPL is not a laser. It emits noncoherent, noncollimated light using a xenon flash lamp as its source. Because this is broad-spectrum light, cutoff filters are used to achieve the appropriate wavelength depending on the tissue targeted for treatment, making IPL treatment useful for many conditions. The primary goal is for the energy to be absorbed by

skin chromophores, most commonly hemoglobin and melanin, and by water. Chromophores are the parts of a molecule that give it color. The energy is delivered in pulses with a delay that is dependent on the targeted tissue and designed to optimize results.

2. IT'S A MAINSTREAM APPROACH FOR DRY EYE AND MGD

The 2017 Tear Film & Ocular Surface Society Dry Eye Workshop II (TFOS DEWS II) was an international dry eye disease consensus.¹ Part of its mission was to update approaches to dry eye disease diagnosis and management. Based on its findings, the management and therapy subcommittee placed IPL as a step 2 treatment for dry eye and meibomian gland dysfunction (MGD). Step 1 treatments include lifestyle changes, artificial tears, nutraceuticals, and lid hygiene. Step 2 therapies such as IPL, lifitegrast (Xiidra, Shire), cyclosporine (Restasis, Allergan), and vectored thermal pulsation (LipiFlow Thermal Pulsation System, TearScience) are to be considered if step 1 therapies are insufficient.

AT A GLANCE

- Intense pulsed light is gaining attention in eye care as a treatment for ocular surface disease.
- It is a light, not a laser. It can be used to treat dry eye disease and meibomian gland dysfunction.

3. THE DRY EYE BENEFITS OF IPL HAVE LONG BEEN RECOGNIZED

IPL was approved by the FDA to treat vascular lesions in 1995. In 2002, Rolando Toyos, MD, was using IPL to treat patients with rosacea as part of his medical aesthetics clinic in Nashville, Tennessee, and he noted that many patients said that their eyes felt better as the treatments progressed and that they reported fewer dry eye symptoms. Dr. Toyos then began to fine-tune the algorithm for dry eye and MGD treatment, in addition to performing clinical research.²

4. RESEARCH CONTINUES

There is an abundance of research about the use of IPL for dry eye treatment, some of which was reviewed in TFOS DEWS II.

Craig et al administered three IPL treatments to 28 patients around one eye and placebo around the other one over a 6-week period.³ Statistically significant improvements were seen in the treated eyes in lipid layer thickness, noninvasive tear breakup time, and visual analog symptom scores. The authors concluded that IPL improved tear film quality and reduced symptoms.

A 2016 study retrospectively examined 81 patients who received IPL treatments followed by manual meibomian gland expression.⁴ The study concluded that the combination of IPL and meibomian gland expression can significantly reduce symptoms as reported using the Standardized Patient Evaluation of Eye Dryness 2 questionnaire and can improve meibomian gland function.

Another 2016 study looked at 100 patients with a diagnosis of dry eye and MGD and evaluated the following parameters: eyelid and facial vascularity, eyelid margin edema, meibomian gland oil flow, and quality score (all graded on a scale of 0 to 4), as well as tear breakup time and Ocular Surface Disease Index.⁵ On average, patients received four IPL treatments. Statistically significant improvements were seen in every

parameter, and no adverse events were seen. The study concluded that IPL therapy for evaporative dry eye disease is safe.

5. IT'S A QUICK PROCEDURE

In the same way that painting a house is easy once you do all the preparation, an IPL procedure can be performed efficiently with minimal physician time once the patient has been assessed and prepped.

Skin typing is critical to the safety and efficacy of IPL treatment. The patient fills out a questionnaire to assist in determining skin type. Other factors to consider include ethnicity, current medications, and recent sun exposure. The treatment area should be examined closely after being cleaned. There are often unexpected findings once makeup is removed, such as telangiectasia and pigmentation, including melasma. Transmission gel is then applied.

The next step is to determine the wavelength, fluence, and pulse pattern. The M22 Optima IPL (Lumenis) has predetermined algorithms for IPL based on the treatment desired. The instrument provides settings based on the previously mentioned work of Toyos. The user enters the skin type, and the software chooses the rest of the parameters. These settings can be customized to the patient after the physician learns the nuances of treatment. As the consumables are low cost, it is not unreasonable to do a test spot to determine the patient's skin reaction to the chosen settings. Once the patient is prepped, including eye protection for the patient and for anyone else in the room, the procedure takes about 5 minutes.

Spots are placed across the treatment area with a 10% overlap. A chilled crystal applied to the skin makes the procedure more patient-friendly. The patient experiences a rubber band snap feeling and a bright flash. The sensation is transient, and patients should feel good when they leave. Many patients report that their skin feels extra smooth.

Sunscreen is applied after the

procedure. A total of four treatments are performed with intervals of between 3 and 5 weeks. Maintenance treatments are then performed every 6 months. As there is not much benefit in a single treatment, packages of four are a good way to provide the best value to the patient.

6. IPL CAN BENEFIT MANY

We have found that most patients are enthusiastic about their results, with the most symptomatic improvement seen after the third or fourth treatment. Although our goal is to treat dry eye, MGD, and ocular rosacea, patients may also notice aesthetic benefits. IPL homogenizes the skin, evening out pigmentation and reducing facial redness and telangiectasia caused by rosacea.

A POTENTIAL PATIENT PLEASER

The initial capital outlay for IPL is not insignificant, but the consumables are negligible and the investment can be recouped quickly. In addition, the procedure takes minimal physician time. Symptomatic relief combined with aesthetic benefits is a winning combination. IPL can be a real patient pleaser. Be sure to check with your individual state's laws regarding the use of IPL. ■

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- Financial disclosure: None acknowledged