Redesigned Probe Delivers Consistency and Simplification to IOP Reduction

Device is easy to use and suitable for a broad range of glaucoma patients.

By Karen Appold, contributing writer

Earlier this year, Iridex revised its Micropulse P3 probe, a second-generation probe used to perform micropulse transscleral laser therapy (TLT), to deliver greater stability, visualization, coupling, and fit. The original Micropulse P3 device was released in 2015. Since then, the company has taken feedback from users to improve the device.

Specific Improvements

The revised Micropulse P3 probe features multiple design enhancements. A recessed fiber tip with an added fluid channel enables consistent fiber immersion in fluid during treatment to improve light coupling to the tissue, which is a critical success parameter for the procedure, according to David Bruce, CEO of Iridex. Also, a smaller, concave footplate and an elongated stem enhance placement and visualization of the treatment area. The upper edge of the footplate is shaped to match the limbus, enabling surgeons to better orient the device and identify correct placement for a more uniform treatment.

Brian Francis, MD, professor of clinical ophthalmology at Doheny Eye Institute, was enticed to try the Micropulse P3 because it uses less energy than the previous model.

"It's a different way to do transscleral laser therapy," he says. "You can limit energy delivery and secondary issues such as inflammation, pain, and decreased vision." Dr. Francis, who served as a consultant to Iridex in the early release of the device, adds the improved Micropulse P3 device is like night and day compared to the G-Probe device with a continuous wave laser.

"By splitting up energy into small packets of exposure, you decrease the total amount of energy used," he says. "When you deliver energy, it's such a short pulse that it doesn't have time to be spread and absorbed by the adjacent aqueous tissue — which reduces inflammation."

In a recent study, Dr. Francis and colleagues compared the short-term efficacy and safety of micropulse TLT in managing refractory glaucoma to outcomes of prior glaucoma surgeries. They found that micropulse TLT in 116 eyes had a significant short-term ocular hypotensive effect and

favorable safety profile in eyes with refractory glaucoma.[1]

How It Works

Micropulse TLT is a nonincisional procedure that has been shown to achieve substantial reduction in intraocular pressure (IOP) for a broad range of glaucoma cases[2-6]; it can be used for primary open-angle, closed-angle, and refractory glaucoma. Micropulse technology delivers controlled thermal energy in a durable, therapeutic dose to shrink ciliary body tissue to enhance aqueous outflow.

Dr. Francis uses the device for a wide range of glaucoma cases. For earlier or milder cases, he recommends using laser trabeculoplasty or medication instead.

Dr. Francis described the device as innovative for two reasons. "Although the probe is used to perform a surgical procedure, it's essentially nonincisional because it doesn't require cutting into the eye — everything is done externally," he says. "This reduces risks associated with eye surgery. The other innovation involves energy delivery. It lowers IOP comparably to traditional transscleral cyclophotocoagulation."

The device can be introduced prior to, in conjunction with, and following all other glaucoma treatment options, making it a versatile tool, Dr. Francis adds.

Ease of Use

Bruce says that users report the device delivers energy more consistently with less technique dependence.

"The device is held flush against the eye and is slowly moved in an arc across the sclera, sparing the 3-o'clock and 9-o'clock hours. We identified 9 key variables to control during a procedure with the initial version of the device, and through engineering, we reduced it to 3 — power, duration, and sweep velocity."

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Dr. Francis says that, because the foot plate is smaller and the angulation of the approach is more vertical, the new probe is much easier to use for patients who have a tight lid space. He recommends using a coupling agent, such as lidocaine gel, on the eye's surface, to act as an interface between the tissue and laser for optimal laser delivery.

Micropulse can be performed both in an office setting and in a sterile operating room setting. Most patients recover quickly and require minimal postprocedure follow-up. Many patients can return to their normal daily activities within 24 hours. Patients are typically seen at either 1 day or 1 week postoperatively and then again at 4 to 6 weeks.

Final Thoughts

As a result of using the revised Micropulse P3 device, Dr. Francis performs 10 times as many micropulse TLT procedures now as before — due to its safety profile. "Micropulse TLT is something that I can offer much earlier on in the treatment spectrum, whereas traditional transscleral cyclophotocoagulation was more for end-stage or very advanced disease in a last-ditch effort," he says.

Bruce concludes by saying, "I believe that its benign safety profile coupled with effective and durable IOP reduction provides physicians with a compelling tool to treat glaucoma without opening the eye, offering a significant advantage for both the surgeon and patient."

The other advantage is that micropulse TLT is repeatable and doesn't limit or prevent using other glaucoma treatments. One study[7] demonstrated long-term IOP control through repeat micropulse TLT procedures; it followed patients over 6 years with an average of 3.4 procedures about every 22 months. "This kind of benign control and extended runway is very attractive compared to other choices," Bruce says. **GP**

References

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