

Setting Target Pressures

Aim for a range instead of a number to more fully account for each patient's needs.

BYINDER PAUL SINGH, MD

After a patient is diagnosed with glaucoma, what comes next? Does the patient need treatment? If so, does he or she need eye drops, a laser procedure, or surgery? The surgeon is better equipped to answer this question once he or she understands and determines the patient's target IOP.

WHAT IS A TARGET IOP?

Target IOP is defined as the IOP level at which physicians believe that further glaucomatous optic neuropathy is unlikely to occur. Target IOP is essentially a clinical "guesstimate" based on information such as the severity of disease, the baseline untreated IOP level, and the presence of risk factors for the development of glaucoma or its progression. Target IOPs are not static but change constantly depending on whether the glaucoma is stable or shows signs of progression. No magic number or range works for every patient. A person's life expectancy and health and even the chances that he or she will adhere to the recommended regimen all play a role.

It is easy to get caught up in trying to identify a specific number, which is why I usually prefer to use a target range (ie, upper teens, middle teens, lower teens). Target IOPs also offer patients context and something on which to focus. I find that patients truly want to know their IOP and are more engaged during visits when I discuss numbers or ranges. Also, giving patients a "goal" IOP encourages them to take more responsibility for their care, and they are able to appreciate the success of treatment. When both the patient and I are aware of the target IOP, I am better able to explain why I may need to add or change treatment without the patient's second-guessing or feeling confused.

HOW I TARGET IOP

Ocular Hypertension

As a rule of thumb, the more advanced the glaucoma is, the lower the IOP must be to protect whatever nerve tissue the patient has left. The best time to

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diagnose and treat glaucoma is therefore before the patient has lost any retinal ganglion cells or visual field. In the Ocular Hypertension Treatment Study (OHTS), patients had a 20% mean reduction in IOP, but even so, 5% of the patients still developed glaucoma.¹ If I think a patient fits into the OHTS group (no glaucomatous damage), I will set a target pressure reduction of at least 20% to 25%. This goal is fairly easy to hit, because most prostaglandin analogues can achieve a 30% reduction with few side effects. In some cases, I target an acceptable range instead of a percentage. For instance, if a patient with ocular hypertension has an IOP of 35 mm Hg, I may want to decrease it to the low 20s, which might mean a 35% reduction.

Early Glaucoma

For a patient with early disease, my upper limit is usually less than 21 mm Hg (ideally, the upper teens) with a reduction of at least 25% from baseline. In the Early Manifest Glaucoma Trial (EMGT), patients with newly diagnosed primary open-angle glaucoma and an average IOP reduction of 29% achieved a 50% reduction in the relative risk of progression.² Comparatively, in the Collaborative Initial Glaucoma Treatment Study (CIGTS), there was no average visual field progression in 7 years because of surgeons' insistence on achieving an aggressive target pressure.³ It required about a 30%

IOP reduction in mild cases and a progressively greater decrease for more advanced cases.³

Moderate Glaucoma

For a patient with moderate disease, my upper limit is less than 18 mm Hg with a reduction of at least 30% to 35% from the baseline IOP. I usually aim for the middle teens (15-16 mm Hg). My targets are based on the CIGTS and the Advanced Glaucoma Interventional Study (AGIS).⁴

Severe Glaucoma

In patients with severe glaucoma, I shoot for the low teens or below (around 10-12 mm Hg if possible). The AGIS showed that a low IOP is associated with a slower progression of visual field loss.⁴ Patients with a pressure consistently below 18 mm Hg combined with an average IOP of 12 mm Hg experienced almost no glaucomatous progression over a 14-year period. There was gradually increased damage at IOPs of 15, 17, and 20 mm Hg. Patients with less consistently reduced IOPs and a mean IOP in the midteens suffered progression to about 2.5-dB mean defect, and those with a mean IOP of 20 mm Hg suffered progression of about 3.5 dB on average. I therefore target near episcleral venous pressure in this group. Patients often end up needing surgery, because drug

therapy is associated with compliance issues and fluctuation in IOPs.

CONCLUSION

Every patient is unique, and physicians must customize the target IOPs and ranges accordingly. Reassessing the optic nerve head, using the Humphrey visual field test (Carl Zeiss Meditec), compliance, the side effects of treatment, life expectancy, and other variables are necessary to truly determine a patient's target IOP. The benefits of reaching this goal must be weighed against the risks of the treatment itself. ■

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