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Chats

Treatments for Open Angle Glaucoma

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Transcript of teleconference with Tania Tai, MD, Associate Professor of Ophthalmology and Director of Glaucoma Clinic, New York Eye and Ear, Icahn School of Medicine of Mount Sinai

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Please note: This Chat has been edited for clarity and brevity.

DR. PREETI SUBRAMANIAN: Hello. I'm Preeti Subramanian, Director of Vision Science Programs at BrightFocus Foundation. Welcome to our second BrightFocus Glaucoma Chat, and I'll be your moderator today. This is a monthly program in partnership with the American Glaucoma Society, and the program is designed to provide people living with glaucoma and the family and friends that support them with information directly from the glaucoma experts. The American Glaucoma Society counts the leading glaucoma specialists in the country in their membership, and we are looking forward to hearing them discuss many topics about glaucoma during this Chat series. For those of you who may not be familiar with BrightFocus Foundation, we fund some of the top scientists in the world who are working to find better treatments and, ultimately, cures for glaucoma, macular degeneration, and Alzheimer's disease. And we do events like today's Chat to get the latest news from science as

quickly as possible to families that are impacted by these diseases. You can find much more information on our website, www.BrightFocus.org. I'm pleased to introduce today's guest, Dr. Tania Tai. Dr. Tai is a member of the ophthalmology faculty practice at New York Eye and Ear Infirmary [of Mount Sinai]. She specializes in the medical, laser, and surgical management of patients with glaucoma or for people who are at risk of glaucoma. With all of that said, Dr. Tai, welcome, and thanks so much for joining us today.

DR. TANIA TAI: It's my pleasure to be here.

DR. PREETI SUBRAMANIAN: Last month, we talked about how glaucoma is a disease of the optic nerve, which is the cable that consists of the bundle of nerves that connect the eye to the brain and how, in people with glaucoma, the optic nerve loses the nerve cells, which can cause blindness. Can you tell us about how glaucoma treatment works?

DR. TANIA TAI: So, as you've just mentioned, and as some of you may have heard from the prior podcasts, glaucoma is a progressive weakening of the optic nerve. Now, there are many factors that can contribute to the disease; however, the main risk factor that we can control is the intraocular pressure. The higher the intraocular pressure, the more stress there is on the optic nerve and the more likely that the glaucoma will progress, so the glaucoma treatment aims to decrease the intraocular pressure to a level that will slow or prevent further damage to the optic nerve. The level of intraocular pressure that is necessary for each patient is different, and we may even want to lower the intraocular pressure further—even if the pressure is within the average normal range—if we see that the glaucoma is still progressing.

DR. PREETI SUBRAMANIAN: Yeah, that's great, and so, do we know of any glaucoma treatments that can reverse the damage to the optic nerve at the back of the eye?

DR. TANIA TAI: There are no glaucoma treatments right now that are proven to reverse optic nerve damage; however, there is some evidence that sustained lowering of the intraocular pressure can lead to some improvement of the visual field. Treatments to heal the optic nerve is an

active area of research, and I believe future glaucoma Chats are planned with science has set may be able to expand on this further.

DR. PREETI SUBRAMANIAN: Yeah, absolutely. There is some exciting research happening in that area, as you mentioned, to restore vision, and we look forward to those topics to be covered. So, what are the treatments for lowering the eye pressure that's currently available?

DR. TANIA TAI: The treatments for glaucoma include lowering the intraocular pressure with eye drops or oral medications, and there's laser or incisional surgery, so there are many different options for glaucoma treatment depending on the severity and the type of glaucoma that the patient has.

DR. PREETI SUBRAMANIAN: I know that eye drops for glaucoma are pretty common. Are these the first line of treatment, and can you also tell us how they work?

DR. TANIA TAI: Yeah. Glaucoma medications are often the first line of treatment for glaucoma, and there are many different classes of glaucoma medications, but they all work—like I mentioned before—to decrease the intraocular pressure. Some medications do this by decreasing the amount of fluid the eye makes, and that lowers the eye pressure by allowing the eye to catch up on the fluid balance in the eye. Other medications work to increase the outflow of the fluid from the eye. In order for these medications to have a consistent effect on the intraocular pressure and prevent vision loss from glaucoma, they all need to be used regularly once or several times a day as prescribed.

DR. PREETI SUBRAMANIAN: Great, so it's really important that one sticks to the eye drop routine to prevent vision loss. How long does one need to use the eye drops, and are there side effects associated with the use of these eye drops?

DR. TANIA TAI: In general, once we start on the medications and it's working for you, we tend continue these eye drops for an indefinite period of time. The eye drop effect may last very, very long—I mean, as long as you use them. You do have to use eye drops as regularly

prescribed but, as long as you use them, the effect on the intraocular pressure on your eyes may last a very long time. But there are instances where the control of the intraocular pressure may need more medications or a change in medications. And so, it's important, even if you're using eye drops and it seems to be controlling the intraocular pressure, to follow up regularly with your glaucoma doctor because sometimes, even if it's been controlled for a long time on the same medication, the eye pressure may start to change.

Or you may start developing side effects from medications, which, you know, can start immediately, or they may start long after you started using eye drops, and that is another indication for changing of the medication. And in terms of side effects, each medication ... like I said, there's different types and different classes of medication. Each medication has a different potential side effect. In general, side effects are mild and rare, but there are some side effects, such as cosmetic side effects—such as lengthening of eyelashes or darkening of the iris or the skin—and there can be some systemic side effects that affect your body as well, such as lowering of the blood pressure. Some of these side effects are reversible, which means that as soon as you stop the medication, the side effects start to go away, but there are some side effects that are not, and they can be sustained, so it's important to discuss these side effects with your physician as well as any other medical problems and allergies you may have before starting on these medications.

DR. PREETI SUBRAMANIAN: Great. It looks like one has to work very closely with their physician to go over all of that. What are some of the alternatives to eye drops for patients?

DR. TANIA TAI: You mentioned that medications are often the first-line treatment for glaucoma, but another first-line treatment for glaucoma is laser. Laser trabeculoplasty—the most common one being selective laser trabeculoplasty or SLT—is also indicated as the first-line treatment for lowering intraocular pressure.

DR. PREETI SUBRAMANIAN: And so how does the laser therapy work?

DR. TANIA TAI: The laser actually doesn't cut anything or make any incisions, but it is an office procedure where laser energy is applied to the trabecular meshwork of the eye. The trabecular meshwork is the area of the eye that is largely responsible for reabsorbing the fluid of the eye back into the body, so in essence the trabecular meshwork is the natural drain of the eye, and SLT stimulates the trabecular meshwork to increase the amount of fluid drained from within the eye. So, if we increase drainage of the fluid from the eye, you lower the intraocular pressure. It may take up to 2 months for the laser to take its full effect, and the side effects and the risks are generally minimal, but it could include a temporary spike in intraocular pressure and temporary inflammation. But like I said, these side effects are rare, and in fact, studies have shown that SLT may have fewer side effects and costs than glaucoma medications in the long term. And there are also studies that suggest that SLT may be better at maintaining a consistently lower intraocular pressure than glaucoma medications. The SLT effect doesn't last forever. It does wear off gradually, but it may last one to several years, and you can repeat the laser again if it did work for you.

DR. PREETI SUBRAMANIAN: Great. And if the patient needs to use eye drops, would that depend on a case or case by case?

DR. TANIA TAI: Whether you want to start off with laser therapy or whether you want to start off with using glaucoma eye drops, that depends on the patient preference as well as the type of glaucoma and the extent of glaucoma, so that is a decision that can be made after discussion between the patient and the physician. But sometimes, for example, if this laser lowers the intraocular pressure but not quite enough, you can still use medications to lower that pressure further, so it doesn't exclude you from using medications if you opt to do the laser and vice versa. So, if you're using glaucoma medications and it's lowering your intraocular pressure but not quite enough and you don't want to use multiple medications, SLT is an option to lower your pressure further—maybe without having to increase the medications.

DR. PREETI SUBRAMANIAN: Great. And can you tell us about other glaucoma surgery?

DR. TANIA TAI: Yes. As I mentioned before, treatment for glaucoma is medicine, laser, and surgery. In general, we try to do the first-line therapies, such as medicine or laser first, and if your intraocular pressure is still not controlled, then we can suggest a glaucoma surgery, although there are now some newer surgeries called MIGS, which are less risky—and they stand for microinvasive glaucoma surgery—which can be good options for some patients with glaucoma, and they can be used earlier on in the glaucoma disease. But, however, a traditional glaucoma surgery is aimed to lower the intraocular pressure by creating a pathway for the fluid inside the eye to exit and be reabsorbed from outside of the eye, and the two main traditional glaucoma surgeries are trabeculectomies and glaucoma drainage implants. In a trabeculectomy surgery, a small hole is created in the inner layer of the eye to allow fluid to escape and then this hole is covered back up by the outer layers of the eye, so the fluid doesn't drip freely—it just goes through the outer layer of the eye where it's reabsorbed. In a glaucoma drainage implant surgery, a small tube is inserted into the eye, which is then connected to a plate, and this is outside of the eye, as well, but then covered by the outer layers of the eye. So, this allows the fluid inside the eye to drain through the tube to the plates of the implant where it is then reabsorbed back into the body from the outer layers of the eye. And like I said, these are the two traditional surgeries, which may have more risk than medicines and laser, but if it is necessary to do so, they are very effective for lowering the intraocular pressure. The newer surgery that I mentioned before called MIGS, I believe they're going to be discussed in a future glaucoma Chat, and there are less risks, and they are sometimes used earlier now.

DR. PREETI SUBRAMANIAN: That's great. We will be covering the minimally invasive surgeries in our Chat in February. So, Dr. Tai, how do you know what treatment is right for a patient?

DR. TANIA TAI: Each patient's therapy is really individualized for that patient, and it depends on a lot of things, including the type and the stage of glaucoma, the amount of pressure-lowering that is necessary, and the patient's lifestyle. So, this needs to be a discussion between the physician and the patient, and it's really a personalized choice.

DR. PREETI SUBRAMANIAN: Yeah, that's great. If you had glaucoma, what treatment would you choose for yourself?

DR. TANIA TAI: If I had glaucoma, I think I'd be tempted to try the medications first just to see—get a sense—about how I would feel with it and whether it works well for me. But knowing how hard it is, really, to use medications consistently on a regular schedule and the potential side effects of long-term use, I think that, most likely, I would opt for a laser trabeculectomy as the first-line treatment.

DR. PREETI SUBRAMANIAN: Thank you so much for that. We will be on a break in December, and we look forward to sharing more updates about glaucoma in January 2023. To close out today, Dr. Tai, this discussion has answered so many questions we have received about glaucoma. Before we conclude, are there any final remarks you would like to share with the audience? Any take-home points you want to give to our audience?

DR. TANIA TAI: Glaucoma really is a generally slow-progressing disease with symptoms that may not be noticed by the patient until its very advanced stages, so we do recommend screening for glaucoma. If you haven't had an eye exam and you're over the age of 40, you really should check your eyes with an eye doctor to screen for common eye diseases, like glaucoma. In addition, if you have a family history of glaucoma, that is a risk factor, and so that is an additional reason to go have your eyes checked.

DR. PREETI SUBRAMANIAN: Great. Thank you so much, and as we heard from Dr. Tai, there is no perfect glaucoma treatment, and no glaucoma treatment is right for everyone, so it is an ongoing and personalized approach for each patient. Once again, thank you so much, Dr. Tai, for joining us today. This concludes the BrightFocus Chat about glaucoma. Thank you.

DR. TANIA TAI: Thank you.

Useful Resources and Key Terms

To access the resources below, please contact BrightFocus Foundation: (800) 437-2423 or visit us at www.BrightFocus.org. Available resources include—

- [BrightFocus Foundation Live Chats and Chat Archive](#)
- [Explore grants funded by National Glaucoma Research, a BrightFocus Foundation program](#)
- [Overview of Glaucoma](#)
- [Treatments for Glaucoma](#)
- [Resources for Glaucoma](#)
- [Expert Advice for Glaucoma](#)

Other resources mentioned during the Chat include—

- [Understanding Glaucoma brochure](#)