Austin Health **Ophthalmology Department**

Lasers in Ophthalmology

LASER is an acronym. It stands for **L**ight **A**mplification by **S**timulated **E**mission of **R**adiation. Laser has particular use in ophthalmology because the eye can be used as an optical device. The transparency of the front part of the eye, the cornea, allows light such as LASER to reach almost all the tissues of the eye.

LASER is a bladeless **surgery** of the eye. As such, it can only be administered by qualified medical practitioners with specialist qualifications in eye surgery. All lasers are done in the outpatient clinic and do not require admission to hospital.

Types of Laser in Ophthalmology at The Austin Hospital

1. Nd:YAG LASER

A crystal containing neodymium generates this LASER. This produces a light of 1064nm which is in the infra-red range. Such light is used to produce photodisruption in the eye for the treatment of conditions such as:

- Acute angle closure glaucoma
- Posterior capsular opacification after cataract surgery

2. Frequency doubled green LASER

This LASER can either be generated by the element Argon or using a 'frequency-doubled' Nd:YAG crystal. It will produce light of wavelength 532nm. This is in the green spectrum of visible light. Such light is absorbed by the pigmented tissue of the eye and can be used to treat the following conditions:

- Diabetic retinopathy and macular oedema
- Retinopathy from vein or arterial occlusions
- Retinal tears before they become retinal detachments
- Plateau iris syndrome

3. SLT LASER

This is generated by the Nd:YAG crystal but at 532nm (green light). The target is the pigmented tissue of the trabecular meshwork. This area is located at the front of the eye and is responsible for drainage of fluid from the eye.

We use this laser in our patients with glaucoma. It can reduce the eye pressure as much as some eye drops and in some cases prevent the need for an operation.

Other LASERs

There are numerous other LASERS in use in ophthalmology. They include:

- The excimer LASER used in corneal refractive surgeries such as LASIK, PRK and variants of this technology.
- The femtosecond LASER used sometimes in corneal and cataract surgery.
- The cyclodiode LASER for advanced glaucoma.

These LASERS are not in use in public hospitals but are generally provided by private specialists providing 'refractive' surgery for patients looking to reduce their dependency on glasses.

Safety in Laser

LASER can be a very useful tool for preventing and treating eye diseases. However it is extremely important that both doctor and patient take precautions when using this technology. Special protective eye glasses, closed doors, covered mirrors and adequate signage are important safety precautions.

Please speak to your Ophthalmologist if you have any further questions or concerns.