



North Shore Eye Centre

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PHOTODYNAMIC THERAPY WITH VISUDYNE

A New Treatment For Age-Related Macular Degeneration

Sometimes patients notice that vision has started to become distorted, and shapes lose their definition, colour and clarity. These changes may be due to a disease in the retina at the back of the eye called Age-Related Macular Degeneration, (AMD) (*Please see our information on ARMD on the website*). This is a rather nasty disease because if left untreated many patients will lose most of their central vision over a period of weeks or months. Usually the “side vision” is not affected, but the central vision gradually becomes obscured by a grey brown blob, which gradually gets bigger. This loss of sharp central vision is caused by an abnormal leaking blood vessel tangle growing in the back of the eye. This little mass of tangled blood vessels, called a neovascular net or frond, leaks blood and fluid and ultimately this causes scarring of the retina. All of this damages the retina, particularly the central part of the retina called the macula, which is the part of the eye that allows sharp, central vision. Unfortunately both eyes gradually become involved in most cases.

Previous treatments have been tried for this condition, with varying success:

1. **“Hot” (conventional, or thermal) laser treatment.** This involves using laser to burn the abnormal blood vessels, but also destroys the retina over the new vessels. It uses green light of 514nm of high intensity and energy. It is still a useful treatment if the abnormal leaking blood vessels are off to one side of the centre of the macula, (extrafoveal) but it damages the retina permanently, so is not used if the area involved is in the centre of the macula, which is called “sub-foveal”. There is about a 50% recurrence of the leaking vessel even after this treatment.
2. **“Cold” laser.** New lasers have been developed which do not burn, or at least they do not burn as badly as the “hot” lasers. The lasers are not really “cold” but it is a useful name to distinguish them. One such laser is used in an experimental technique called **Transpupillary Thermotherapy**, which is undergoing evaluation. It uses invisible infrared wavelength of 810nm. Although it delivers some heat, this is very mild, about as hot as a warm cup of tea which you have almost finished drinking, 45 degrees Celsius. The energy from the laser is concentrated over the leaking blood vessel, and the patient can generally see as well after the laser as before, unlike the “hot” lasers, which destroy the retina, and cause instant loss of part of the vision. So it can be used for subfoveal lesions without causing instant damage to the



sight. Our trials suggest that it is relatively safe and slows down loss of vision significantly, (*unpublished data, presented in poster and abstract form at Royal Australian and New Zealand College of Ophthalmology meeting, Canberra, November, 2002*).

3. **Visudyne** (verteporfin) is a drug that can be given into the vein of the arm, and used in combination with another kind of “cold” laser, which has a red 689nm wavelength. Visudyne has been extensively tested on patients with AMD (age related macular degeneration), and also on leaking subfoveal or retinal blood vessels from other causes such as myopia (short sightedness), and has been tried in cases due to other inflammatory causes. The results are encouraging and show that the loss of vision may be slowed down. But Visudyne treatment is expensive and only recently has the government subsidised it and only for certain types of leaking blood vessels (>50% Classic or clearly visible) and only if the lesion is subfoveal and the vision is relatively good (better than 6/60). An angiogram of your retinal blood vessels using an injection of a greenish yellow dye called fluorescein will need to be done to enable Dr Branley to determine this. The angiogram pictures will be sent to the government panel for assessment before funding for the expensive Visudyne drug will be allocated to you. We are currently working with the government to encourage the access for patients to appropriate treatments. If your angiogram pictures are not considered suitable for the government grant then the cost to the drug manufacturer for the drug Visudyne has to be funded out of your own pocket. The cost is \$4000.00, which covers the cost of the visudyne drug only, and is paid to the manufacturer of Visudyne, not to the doctor.

If you are having Visudyne photodynamic treatment, first we calculate the dose that needs to be injected into the blood, through your arm vein. The visudyne flows up to the blood vessels of the eye. We then shine the “cold red laser” at the lesion under the centre of your retina, and this “activates” the drug, causing it to shrink the leaking blood vessel network. Only a drop of local anaesthetic put into your eye and a large contact lens is necessary. We do the whole treatment in the consultation room, it takes about half an hour and then you can go home. When Visudyne is activated with this laser, it causes the abnormal blood vessels of the AMD to close. In this way, further leakage and bleeding is reduced.

Unfortunately these blood vessels tend to reopen and further treatments will be necessary, usually at intervals of about 6 – 12 weeks. The cost of the treatment is calculated for the WHOLE treatment program rather than each individual treatment session, so patients who have had to pay \$4000.00 to the manufacturer of the visudyne drug, only have to pay it once. Most patients will be undergoing treatment for approximately two years.

Visudyne and strong light or sunshine CAUSES SKIN BURNING, or SEVERE SUNBURN. This can occur for 1-2 days after injection. DO NOT ENTER SUNSHINE OR BRIGHT LIGHTS, such as the dentist’s light, or the surgeon’s light, or a solarium,



or the bright lights of a photographer's studio for two days. COVER YOURSELF with long sleeve clothing, a hat, sunglasses, suncream, gloves etc but if possible STAY INDOORS FOR TWO DAYS. Wearing sunblock does not completely reduce the risk of light sensitivity from this treatment. Wear long pants, a long-sleeved shirt and a hat when you come to our office on the day of treatment. Avoid driving too, because the eyes will be rather blurry for a few hours after the eyedrops we use for the treatment.

Adverse Side Effects

Visudyne can spill into the tissue of the arm during the infusion into the vein. This may cause you to experience some pain where the injection is being made. This is uncommon, but there may be a rash and the skin covering the leak will need to be covered for several days longer to protect it from light, while the photosensitive dye is absorbed by the body.

Some patients experience back pain, or felt sick during the injection. These side effects are fairly mild and go away once the injection is stopped.

Unfortunately it is possible that decreased vision, bleeding inside the eye, abnormal vision and eye pain and redness, may occur. Some of these may also be due to the AMD (age related macular degeneration) itself.

Other side effects have been reported in studies: headaches, dizziness and a drop in blood pressure.

It is always your choice whether you want to submit to any therapy. The doctor may advise you that it is likely to help, but in medicine every person reacts slightly differently. If you prefer, we will continue to care for you in other ways, or offer alternatives, or just monitor your progress. If you start with Visudyne therapy, you can also change your mind. If you experience any side effects, we will consider if we may be required to inform the manufacturer of Visudyne (Novartis) or the Health Authorities.

Why should you have regular eye examination?

Regular medical eye examinations are very important for everyone, as eye disease can occur at any age. Often the patient does not realise symptoms unless the disease has done damage. Therefore, if diagnosed and treated by an ophthalmologist early, most blindness is preventable.