

Researchers find better way to save sight

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People who are losing their eyesight through aged-related macular degeneration (AMD) may soon be able to find out if a commonly used drug can help save their vision.

Researchers at The Vision Centre and The Australian National University have found a new way to measure the effectiveness of the drug ranibizumab for patients suffering the ‘wet’ form of AMD and help doctors decide on the best treatment for new patients. [Macular degeneration](#) accounts for half of the vision loss cases in Australia, costing the nation \$2.6 billion a year. People with Wet AMD suffer from an outgrowth of new blood vessels at the back of their eyes which invade their retinas, leading to progressive blindness. Ranibizumab is a standard treatment that shrinks the blood vessels and helps prevents any further growth.

“A common test to see if the drug works involves getting the patient to look at an eye chart,” says Professor Ted Maddess, the director of The Vision Centre and one of the researchers in the study. “These responses can be subjective and less accurate partly because we’re asking the patients to use their own judgement as to whether they can see better.

“A more objective method involves attaching wires to the patients’ scalp and testing their vision through the electrical responses of their brain. The downside to this test is that it takes too long to set up and doctors or optometrists usually do not have the staff or the equipment to perform it.

“Our new test uses a video camera with infrared lights to watch how the

pupils respond to images on an LCD screen. The little movements of the pupils help us make a map of how well each part of their retina is functioning. This provides us with a reliable objective test that does not involve contacting the eye or brain.”

Using a device known as the Truefield Analyzer, developed by Prof. Maddess’ team, the researchers uses displays to provide multiple stimuli to each eye, at 44 locations in the patients’ visual field. The video of the patients’ eyes is processed by a computer to establish a record of the instantaneous response of their pupils.

By watching pupil responses – and so measuring the retinal function – of patients before and after treatment, the test can quantify the amount of improvement as a result of the drug.

“It wasn’t just a yes or no answer to whether the drug was working or not – we can actually track the progress of the improvement,” Prof Maddess says.

The surprising finding was that the test can often be used to predict if a new patient will respond well to the drug.

“An indication of good pupil response is the speed and the size of its contraction – healthy eyes have bigger responses or react quicker. We found that new [patients](#) who had good responses before their first treatment generally reacted better to the drug, and vice versa.

“Testing for responses is important because [Ranibizumab](#) is a very expensive drug, and is administered by injection into the patient’s eye. With the new test, doctors can better assess how the patient will respond, and decide whether this drug is best for them.

“This [test](#) holds a promising role of predicting if a treatment will work

for a patient. So we hope that will assist [drug](#) development as well.”

The group’s paper “Multifocal pupillography identifies Ranibizumab-induced changes in retinal function for exudative age-related macular degeneration” by Faran Sabeti, Ted Maddess, Rohan W. Essex and Andrew C. James has been published in the latest issue of *Investigative Ophthalmology & Visual Science*.

Provided by The Vision Centre

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