

Eyes provide clues to a common cause of stroke

In a groundbreaking study researchers have concluded that evidence of the cause of "lacunar stroke" can be found by looking at the back of a patient's eyes.

The University of Sydney's Professor Richard Lindley led the international multi-centre study which assessed more than 1300 acute stroke patients and discovered that 'lacunar stroke' patients were more likely to have retinal vessel signs than other types of strokes.

The findings support the evidence of an association between retinal microvascular signs and stroke, changes that may also underlie the pathology of lacunar stroke.

"In Australia almost 20% of strokes are the lacunar subtype, which is caused by small blood vessel disease in the brain."

Clinical management of small vessel (lacunar) stroke has traditionally been based on the assumption of underlying thrombotic small vessel disease or blood clots.

"The study challenges the current thinking that lacunar stroke are due to blood clots and suggests they may be due to other mechanisms such as a generalized thickening of the small blood vessels and areas of multifocal narrowing of the blood vessel lumen." says Professor Lindley.

"The study results will hopefully stimulate a completely different approach to stroke prevention and treatment for this particular type of stroke."

Retinal photographs were taken from patients shortly after being admitted to hospital with a stroke. These images were assessed by experts at the Centre for Vision Research in Sydney, and also at the Centre for Eye Research Australia, Melbourne.

Study collaborator and Director of the Westmead Millennium Institute's Vision Research, Professor Paul Mitchell says "This study is a landmark finding in terms of stroke research, and suggests that eye imaging has an important role, somewhat similar to MRI, in determining what subtypes patients who present with stroke have".

Typical risks

Strokes are a major cause of death worldwide, and cause over 50 000 new cases each year in Australia. 85% of stroke is due to blood vessel blockage and 15% due to haemorrhage.

Up to 20% of patients with acute stroke have the "lacunar" stroke sub-type, due to "small blood vessel" stroke, affecting some 10 000 Australians each year. Other stroke types are due to clots from the heart (emboli) or blockage of large blood vessels.

Typical risk factors for stroke include smoking, high cholesterol, diabetes, and high blood pressure.

The results of the National Health and Medical Research Council funded study will be published in the July

print edition of the prestigious *Lancet Neurology*. Electronic advance copies are now available online at *The Lancet* together with an editorial.

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