This condition in future. While it is well established that narrowed arterioles lead to higher blood pressure, there was previously no easy way to observe these arterioles without ‘invasive’ techniques. But with Prof Wong’s method, the entire blood vessels can be observed using digital cameras to scan the eye.

The NUS with the School of Computing, Prof Wong and his colleague have developed a software that uses computational techniques to analyse the eye scans when looking for changes in blood vessels at the back of the eye. Prof Wong also points on the exact location of specialists in diabetes, cardiology, stroke and dementia at the medical school to make the connections between blood vessels in the eye to the arteries.

He is currently conducting a pilot study in medical clinics and working with government policies to determine what type of patients would benefit from such an eye scan and how much these scans would cost. He notes that the current medical care for diabetic retinopathy is a crucial step in bringing this work to the general population.

While he does not envision eye scans becoming a routine part of eye examinations for these major diseases, Prof Wong says: “We do not believe that each one of these eye scans where the local traditions of the Chinese have not been strong. Whether it is going to be used to screen for diseases for the general population. It is necessary to be cost-effective from a population level, just like any other screening procedure.”

Eye scan can detect major diseases

The eyes can be an early marker as they provide a way to study the blood vessels of the body in a non-invasive way.

By Douglas Chiew

The eye is more than just a window to the soul. Peering deep into the eye to examine its blood vessels can also help doctors detect major diseases early.

The research by Professor Wong Feng Yen (above), head of ophthalmology at the National University of Singapore (NUS), Yong Loo Lin School of Medicine, has provided insights into major sicknesses and causes of death in Singapore, such as diabetes, hypertension and cardiovascular diseases.

“One of the ways to detect these blood vessels is through eye examination, which is more effective than the standard treatment of many chronic diseases,” says Prof Wong.

Certain changes in these blood vessels give early indication that something is wrong with different diseases affecting these blood vessels differently. The current methods for predicting a patient’s chance of developing such diseases are based on identifying risk factors in the patient. A family history of such diseases, obesity and smoking are some of the risk factors used to categorise patients into high- and low-risk groups.

This method, however, misses a sizable number of people who do not fall into the high-risk group but do not fall into the high-risk group.

In some studies, up to 10 per cent of healthy adults have abnormal eye scans. Prof Wong’s research shows that narrowed arterioles in people who presently do not have hypertension predicts a higher risk of developing major diseases.

This method is more effective in the treatment of multiple myeloma and there are no toxic side effects for the patient, reports Koh Joh Ting

Targeted drug therapy yields higher survival rates in blood cancer

Drugs for MM act by “switching off” abnormal processes in the MM cells to stop their growth. They are most effective when used at an early stage and they do not induce deleterious side effects in the body, unlike chemotherapy, which destroys normal cells as well.

Some 35 per cent of the patients have advanced MM and are eligible for therapy. The patients also survive beyond the 12th month. However, 25 per cent of the patients are still not effective, says Assoc Prof Chng. However, this is affordable in the case of the 25 per cent of patients who are not effective.

As a result of this, the 25 per cent of patients who are not effective and the 25 per cent of patients who are effective have significantly longer survival times of six months after a stroke.

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