Sydney Local Health District clinicians in world-first

In a world first, researchers at Royal Prince Alfred and Concord hospitals have found a way to identify the one in three patients at risk of suffering heart damage after undergoing simple procedures to unclog blocked arteries.

Coronary artery disease, where plaque or fat builds up on the inner walls of the arteries to the heart, reducing blood flow, is the most common cause of death worldwide.

Angioplasty, the procedure used to treat coronary artery disease, is performed on more than four million people worldwide each year.

But up to 30 per cent suffer a degree of heart damage following the procedure because the balloons or stents, used to open narrowed arteries, can dislodge plaque, pushing it downstream towards the capillaries, or microcirculation, and causing blockages.

Until now there has been no way of predicting which patients were at risk.

In breakthrough research published tomorrow (August 1, 6am Sydney time) in the peer-reviewed journal *Circulation: Cardiovascular Interventions*, clinicians at SLHD and Stanford University in California, have shown for the first time that the health of those capillaries strikingly predicts a patient’s risk of heart damage at the time of angioplasty.

By measuring the health of the heart capillaries of patients before they undergo angioplasty, they were able to predict those who were at risk of heart damage from angioplasty. Patients with impaired heart capillaries were found to have a 60 percent risk of heart damage after angioplasty.

“We were stunned by the findings of this study,” co-lead researcher and Associate Professor of Medicine at Royal Prince Alfred Hospital, Dr Martin Ng, said.

“Angioplasty is one of the most common cardiac procedures in the world - we do 800 at RPA every year - yet the causes of heart damage from angioplasty are not fully understood and there are no easy means of identifying patients at risk.” Dr Ng said. “We demonstrate for the first time that the health of your heart capillaries is a key determinant of your risk of heart damage from angioplasty and demonstrate a method to identify patients who are at risk.”

Joint lead researcher Dr Andy Yong, a staff specialist at Concord Hospital, said patients shown to be at risk could be given preventive treatment.

“Those identified can be given strong intravenous blood thinners before the angioplasty goes ahead, or we can use small filters to capture the plaque, preventing it from lodging in smaller vessels,” he said.

“Uncovering this robust method of predicting those at risk will save lives.”