World-first test to help joint replacement patients

A world-first genetic test to determine whether people receiving hip and knee replacements will react badly to the metal components is underway, thanks to THRF's generous supporters!

Associate Professor Andrew Kurmis

Orthopaedic surgeon Associate Professor Andrew Kurmis at Lyell McEwin Hospital is trialling a test which identifies specific genetic markers in patients at greater risk of reacting badly to metal-on-metal implants used in hip and knee replacements.

"Joint replacement surgery is becoming increasingly common – people are living longer and patients today expect higher performance from their joint replacements," A/Prof Kurmis said.

"People with arthritis don't accept that they might need to sit on a rocking chair on the porch for the rest of their days. If you can give them a better quality of life, they want it."

At the moment, a metal-on-plastic implant is more commonly used but it is less hardwearing and has a shorter lifespan than the stronger metal-on-metal implants. However, metal-on-metal has the risk of the patient developing painful and destructive 'pseudotumours', so it is rarely used.

"Increasingly, people are seeking joint replacements at younger ages, but the joints themselves have a finite lifespan and the 'classic' metal-on-plastic option hasn't always been durable enough to last a lifetime and has had other potential problems.

"Revision surgery if the joint replacement wears out is a big undertaking – it is costly, resource intensive, painful and the performance is often less predictable.

"The problem is, up until recently, there has been no way of determining which patients will get a pseudotumour with the metal-on-metal implant, and which ones won't. It has been safer to just not put them in at all."

But this could be about to change with A/Prof Kurmis's test, which can determine an individual patient's risk of developing a pseudotumour.

"For those patients who have such an implant now, this test allows us to determine their subsequent risk of developing a pseudotumour and helps inform decisions about ongoing monitoring and potential pre-emptive surgery.

"For patients who need a joint replacement, it allows us to prospectively establish their risk profile, to allow most appropriate implant selection. There are likely some patients for whom a metal-on-metal joint would be the best option – if we could be confident it would be safe for them."

A/Prof Kurmis is currently recruiting 300 patients, mainly from GP referrals, to trial the genetic test.

"I'm very grateful for THRF's donors for supporting this project. With solid science to back it, we hope that even more patients will benefit through reducing avoidable revision surgery as the test becomes more widely available and, eventually, standard-of-care," A/Prof Kurmis said.