

Adelaide orthopaedic surgeon wins international award

medicSA talks to **Dr Andrew Kurmis** who was recently awarded the prestigious Frank Stinchfield Prize for outstanding contribution to the field of hip surgery.

Congratulations on recently being awarded the Frank Stinchfield prize. Can you tell us a little about the award itself?

Thank you. The prize is awarded annually by the International Hip Society. It's presented at the American Academy of Orthopaedic Surgeons (AAOS) meeting in the USA. I travelled to San Diego as an invited speaker to present a summary of the research and to collect the award itself. The AAOS meeting is one of the largest international orthopaedic scientific meetings, attended by over 22,000 people – including over 13,000 surgeons/clinicians.

Who is the award named after?

The late Professor Frank E Stinchfield who was a prominent orthopaedic surgeon from New York City. He passed away in 1992, aged 82, and is widely recognised as one of the pioneers of total hip replacement surgery in the USA. To receive an accolade named after a such a distinguished surgeon was a truly genuine honour.

And the same work was also recognised with a significant Australian research prize?

At the end of last year, I was also awarded the Justin Miller Medal by the Royal Australasian College of Surgeons for outstanding clinical research and presentation, which was presented to me here in SA. It was a lovely honour.

Can you tell us about the research itself?

For the last few years, I've been involved in a large collaborative study with other surgeons in Canada, the USA, Israel and the United Kingdom exploring potential genetic markers that underpin an individual patient's risk of developing pseudotumors around orthopaedics implants. These were the key pathology behind the much publicised 'metal-on-metal' (M-o-M) hip replacement saga which led to the large international implant recall (and subsequent class action lawsuits). Prior to this research, pseudotumour formation was largely considered unpredictable, and was a

potentially devastating complication for patients. The findings of our work have allowed us to risk stratify an individual patient – based on their own genotype – and determine their likelihood of developing such a destructive lesion in the setting of a M-o-M hip replacement.

What has been the clinical application of your research?

We now have a fairly simple blood test which allows us to do two things: one, to risk-stratify patients with in situ hip replacements to determine their potential risk of developing a pseudotumor (this may be particularly useful with mobile metallic bearings or otherwise unexplained pain or poor clinical performance); and two, to screen patients for whom a metal-on-metal bearing is otherwise considered a biomechanical advantageous option (or remains the only viable available clinical option). The results of the gene test will permit prospective risk assessment to again inform the rationale for such component selection. Based on what genotype the patient has, we can identify if they are at 'high', 'low', or background population risk as a result of their specific gene combinations.

How much does being positive for the specific gene effect a patient's risk of developing a pseudotumor?

Our research suggests that having the 'at risk' genotype increases an individual's likelihood more than 710% (i.e. >7 fold) of developing a pseudotumor versus background population risk. Without for a moment undermining the significance of breast cancer, in context, by comparison, a female carrying the much-publicised BRCA1 gene associated with malignant breast cancer has only an estimated 5.4 times increased risk of disease development.

Is the test available in Australia?

Yes. Despite a strong commercial interest to have the test released in North America – working closely with



the Australian Red Cross Blood Service (ARCBS) in Adelaide and the Victorian Transplantation and Immunogenetics Service (VTIS) in Melbourne, we have been able to generate a relatively simple and inexpensive version of the test here in Australia that allows us to screen the 'key' genes associated with pseudotumors.

We have already begun applying this test in clinical situations locally.

Is the research ongoing?

Yes. We are currently looking at applications of the test around other metallic orthopaedic implants (e.g. modular total knee replacements) to see if similar reactions are occurring in such settings. I have also recently applied for seeding funding to help us better understand the spread of genes linked to pseudotumors in the Australian population to establish if similar frequencies are seen as compared to overseas cohorts.

Dr Andrew Kurmis is an Adelaide born and trained staff specialist and consultant orthopaedic surgeon working in both private practice and at the Lyell McEwin Hospital. Dr Kurmis is heavily involved in professional advocacy, medical research, and training and education. He currently holds senior clinical lecturer status at the University of Adelaide.

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