World's first bedside genetic test gets green light by Lancet

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This is Dr. Derek So and Dr. Jason Roberts. Credit: University of Ottawa Heart Institute

Developed in Canada and conducted by researchers from the University of Ottawa Heart Institute, in partnership with Spartan Bioscience, the world's first bedside genetic test has received acknowledgment by *The Lancet,* the world's leading general medical journal.

The article Point-of-care genetic testing for personalisation of antiplatelet treatment (RAPID GENE): a prospective, randomised, proof-of-concept trial, reports on the use of a simple cheek swab test, the Spartan RX CYP2C19, performed by nurses at the patient's bedside. This revolutionary technology allows doctors to rapidly identify patients with a genetic variant known as CYP2C19*2. Cardiac stent patients with this variant are at risk of reacting poorly to standard anti-platelet therapy

with Plavix (clopidogrel).

The study demonstrated that tailored drug treatment therapy made possible by the genetic testing successfully protected all of the patients with the at-risk genetic variant from subsequent adverse events, while 30 per cent of patients treated with standard therapy did not receive adequate protection.

"For the first time in medicine, nurses were able to perform DNA testing at the patient's bedside. This is a significant step towards the vision of personalized medicine," said Dr. Derek So, Interventional Cardiologist at the University of Ottawa Heart Institute (UOHI), and principal investigator of the RAPID GENE study.

The RAPID GENE study enrolled 200 patients who were being treated with cardiac stenting for an acute coronary syndrome or stable angina. Patients were randomized to a treatment strategy of rapid point-of-care genotyping and Effient® (prasugrel) for CYP2C19*2 carriers, or to standard therapy with Plavix (clopidogrel). The Spartan RX CYP2C19 bedside DNA test was performed by nurses who received a 30-minute training session, but had no prior laboratory training. The test had a sensitivity of 100% and a specificity of 99.4% compared with DNA sequencing. For CYP2C19*2 carriers, treatment with prasugrel completely eliminated High on-treatment Platelet Reactivity (HPR). HPR is a marker for patients at risk of complications after stenting. In contrast, 30.4% of carriers receiving clopidogrel had HPR at 1 week.

Provided by University of Ottawa Heart Institute