Genetics reveals patients susceptible to drug-induced pancreatitis

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Doctors have discovered that patients with a particular genetic variation are four times more likely to develop pancreatitis if they are prescribed a widely used group of drugs.

Clinicians at the Royal Devon and Exeter NHS Foundation Trust and the University of Exeter Medical School have discovered that 17 per cent of patients who have two copies of a particular genetic marker are likely to go on to develop pancreatitis if they are prescribed thiopurine drugs. The drugs, which include azathioprine and mercaptopurine, are some of the most effective and most commonly used drugs to suppress the immune system in the treatment of Inflammatory Bowel Disease (IBD), rheumatoid arthritis and after some organ transplants.

It has long been recognised that about four per cent of patients who are prescribed these drugs for IBD go on to develop pancreatitis, an inflammation of the pancreas, which can be fatal. But in a study published in *Nature Genetics*, doctors have identified a group of patients whose genetic make-up means they are more than four times more likely to develop the condition when given these drugs.

Dr Graham Heap was part of a team led by Dr Tariq Ahmad, a gastroenterologist at the Royal Devon & Exeter NHS Foundation Trust, working with the University of Exeter Medical School to coordinate input from over 150 hospitals around the world. Doctors around the UK and Europe, and as far afield as Canada and Australia sent genetic data on IBD patients who developed pancreatitis to allow the team to identify

regions of the genome which could make people more susceptible to developing this serious drug side effect.

Dr Heap said: "Our collaboration, which involves clinicians around the world, is seeking to identify tests to enable doctors to predict which patients will develop serious drug side effects. We can now theoretically identify which patients could be at increased risk of developing pancreatitis. We are hoping that this test will be formed into a tool kit of DNA based tests that also assess other important side effects of these drugs such as liver damage or white blood cell counts. We would then be able to use this to identify at-risk patients and ultimately save lives."

More information: *Nature Genetics*, dx.doi.org/10.1038/ng.3093

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