'Jack Spratt' diabetes gene identified

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Type 2 diabetes is popularly associated with obesity and a sedentary lifestyle. However, just as there are obese people without type 2 diabetes, there are lean people with the disease.

It has long been hypothesised that type 2 diabetes in lean people is more 'genetically driven'. A new study from a research team led by the Peninsula College of Medicine and Dentistry (PCMD), University of Exeter, which involved research institutions from around the world, has for the first time proved that lean type 2 diabetes patients have a larger genetic disposition to the disease than their obese counterparts. The study has also identified a new genetic factor associated only with lean diabetes sufferers.

The study is published in PLoS Genetics.

Using genetic data from genome-wide association studies, the research team tested genetic markers across the genome in approximately 5,000 lean patients with type 2 diabetes, 13,000 obese patients with the disease and 75,000 healthy controls.

The team found differences in genetic enrichment between lean and obese cases, which support the hypothesis that lean diabetes sufferers have a greater genetic predisposition to the disease. This is in contrast to obese patients with type 2 diabetes, where factors other than type 2 diabetes genes are more likely to be responsible. In addition, genetic variants near the gene, LAMA1, were linked to type 2 diabetes risk for the first time, with an effect that appeared only in the lean patients.

Dr. John Perry, one of the lead authors of the study, said: "Whenever a new disease gene is found, there is always the potential for it to be used as a drug target for new therapies or as a biomarker, but more work is needed to see whether or not this new gene has that potential."

He added: "This is the first time that a type 2 diabetes gene has been found to act in this way – we do not know why it should be associated in one sub-group of patients and not another. It could point to the fact that type 2 diabetes may not be one disease, but may represent a number of subgroups. Again, more work is required to prove this hypothesis."

Dr. Perry concluded: "This study is a truly international one, bringing together research teams from around the world and leading UK institutions such as the University of Oxford, the University of Cambridge, King's College London, the University of Dundee and the University of Edinburgh."

Provided by University of Exeter

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