Genetic testing no real help in predicting type 2 diabetes - Findings question benefits of genetic home screening tests

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New research funded by the British Heart Foundation (BHF) and the Medical Research Council (MRC) has today revealed that genetic testing provides no real help in predicting the risk of developing type 2 diabetes. The findings question the benefit of genetic direct-to-public home screening tests currently available on the market, which claim to be able to predict the risk of diabetes.

Researchers at University College London compared genetic screening based on 20 genetic variants with two currently used risk prediction tools based on age, body mass, index and family history of diabetes – the Cambridge Type 2 risk score and the American Framingham Offspring Study Risk score.

The study, published in the British Medical Journal (BMJ), assessed 5535 initially healthy people, 302 participants developed type 2 diabetes over 10 years. The Cambridge Type 2 risk score correctly predicted 20% and the Framingham score predicted 30% of those who finally developed type 2 diabetes. The team of researchers then looked at the genetic profile of the group; analysing whether they carried one or more of 20 gene variants known to be associated with risk of developing type 2 diabetes. Adding this genetic information did not significantly improve the ability to predict development of diabetes for either of the risk factor scores.

There are currently 2.6 million people living with diabetes in the UK, of those 85% are believed to have type 2 diabetes which can lead to long term complications including heart attack, stroke, amputation, blindness, kidney failure and nerve damage. A variety of genetic home screening tests are currently available on the market, which claim to be able to detect the risk of developing this life long condition.

Lead author of the study Professor Steve Humphries, BHF Chair of Cardiovascular Genetics at UCL, said:

"Whilst Genome wide scans have now identified more than twenty genes involved in risk of type 2 diabetes their benefit for risk prediction is challenging. That absolutely doesn't mean, however, that finding out which genes are linked to diseases is fruitless. These genetic clues could lead to major breakthroughs in understanding, preventing, treating and even curing these widespread diseases in the future."

Professor Peter Weissberg, Medical Director of the BHF said:

"For the time being I don't believe that purchasing genetic tests to predict your susceptibility to type 2 diabetes or heart disease is a good investment and the BHF does not endorse the use of genetic home screening tests. The implications of the results of such genetic tests are still unknown, even to medical experts. 'Conventional' risk factors such as obesity, smoking, cholesterol and blood sugar levels remain the cornerstone of risk prediction, and can be measured during a trip to the GP.

"The most important message to people is to moderate their diet,

maintain a good exercise programme and to avoid becoming overweight, and if they are overweight to lose weight slowly and steadily as this will reduce their risk, both of type 2 diabetes, and of heart and circulatory disease."

ENDS

Notes to editors

1. Utility of genetic and non-genetic risk factors in prediction of type 2 diabetes: Whitehall II prospective cohort study. Philippa J Talmud, professor of cardiovascular genetics,1 Aroon D Hingorani, professor of genetic epidemiology,2,3 Jackie A Cooper, biostatistician,1 Michael G Marmot, MRC professor of epidemiology and public health,2 Eric J Brunner, reader in epidemiology and public health,2 Meena Kumari, senior research fellow in population health,2 Mika Kivimäki, professor of social epidemiology,2 Steve E Humphries, BHF professor of cardiovascular genetics1. BMJ 2010;340:b4838 doi:10.1136/bmj.b4838.

2. Cambridge type 2 diabetes risk score (age, sex, drug treatment, family history of type 2 diabetes, body mass index, smoking status) and the Framingham offspring study type 2 diabetes risk score (age, sex, parental history of type 2 diabetes, body mass index, high density lipoprotein cholesterol, triglycerides,fasting glucose) - Page 1, Utility of genetic and non-genetic risk factors in prediction of type 2 diabetes: Whitehall II prospective cohort study

3. 5535 initially healthy people (mean age 49 years; 33% women), of whom 302 developed new onset type 2 diabetes over 10 years. Subjects examined were from the Whitehall-II prospective study of civil servants, which includes healthy men and women followed now for more than eighteen years.

4. Diabetes UK:www.diabetes.org.uk

5. The British Heart Foundation (BHF) is the nation's heart charity, dedicated to saving lives through pioneering research, patient care, campaigning for change and by providing vital information. But we urgently need help. We rely on donations of time and money to continue our life-saving work. Because together we can beat heart disease. - For more information visit bhf.org.uk/pressoffice.

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