Research identifies a genetic cause of hypertension

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(Medical Xpress)—A multinational research project led by the Universities of Dundee and Glasgow has identified a genetic determinant of hypertension (or high blood pressure), which could inform treatment of the condition for thousands of patients.

Hypertension (high blood pressure) is a commonly inherited condition arising from the interplay between genetic factors and the environment. However, the genes underlying this have proved difficult to identify.

This new research has identified a common mutation of the genes which regulate the production of the essential hormones - aldosterone and cortisol - in the adrenal gland as being influential in the development of hypertension.

"It has proved very difficult to identify genetic causes of hypertension but this research shows that a gene variation that is present in around 40% of the population is a significant factor," said Professor John Connell, Vice-Principal of the University of Dundee, who led the project.

"Drugs targeting aldosterone are already used in the treatment of hypertension, so this study emphasises that these should be more widely used. It will also inform the development of other therapies that could affect the way that aldosterone is produced. We know that the effects of aldosterone are amplified by a high salt diet, so this could give an important clue to an interaction between a common genetic variation and

the environment."

The project was funded by the Medical Research Council, and led by Professor Connell (University of Dundee) and Professor Eleanor Davies (University of Glasgow), in collaboration with partners across the UK and Europe including the Universities of Cambridge, Aberdeen, Queen Mary London, Oxford and Leicester.

The results of the research have been published online by *Hypertension*, the journal of the American Heart Association.

The study utilised data on more than 3000 patients held by the MRC British Genetics of HyperTension (BRIGHT) study and a further 2900 cases from the Nordic Diltiazem study (NORDIL) and the Malmo Cancer and Diet Study.

The study built on theoretical models that variations in these genes may be risk factors for hypertension. "One of the extremely satisfying aspects of this research has been that we have been able to take that theory all the way through to firm findings that show how the gene variation leads to altered function," said Professor Davies.

Professor Connell said "We will now look to carry out further research, particularly with regard to the importance of genetically determined variation in aldosterone in other forms of cardiovascular disease."

To view the full paper see: ahajournals.org.

More information: doi: 10.1161/HYPERTENSIONAHA.112.200741

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