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Study finds genes that keep watch on blood clotting time

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Scientists have discovered three genes that could shed light on the genetic causes of blood-clotting disorders such as thrombosis and some types of stroke.

Researchers at the University of Edinburgh have discovered that the three genes make a substantial contribution to how long it takes blood to clot.

The team thinks that identifying these genes that control the way blood clots could help further our understanding of conditions such as deep vein thrombosis, heart attacks, some types of stroke, and bleeding disorders.

The study was carried out at the Centre for Cognitive Ageing and Cognitive Epidemiology (CCACE), part of the cross council Lifelong Health and Wellbeing Initiative.

The study looked for associations between half a million genetic markers and time taken for blood to clot, measured by a test called activated partial thromboplastin time (aPTT).

The findings show three genes - called F12, HRG and KNG1 - are responsible for a substantial amount of the variation in speed of blood clotting in different healthy people.

The team will now try to encourage research teams working on relevant

medical disorders to study these genes.

The participants in the study were members of the Lothian Birth Cohorts of 1921 and 1936 who live in the Edinburgh area and took part in the Scottish Mental Surveys of 1932 and 1947.

The Lothian Birth Cohorts, now aged over 70, are being tested by Professor Ian Deary and his team at the University of Edinburgh to find clues to healthy ageing.

Dr Lorna Houlihan, from the University of Edinburgh performed the analysis with help from experts in Edinburgh, Glasgow, and Brisbane She said: "This is an exciting genetic discovery, especially as so few genes account for such a large effect. We have explored the genetics of the medical information that has been given by our cohorts of older people. When I saw this huge finding on the genetics of blood clotting I first checked that it occurred in both our groups - it did. Then I checked that no-one else had discovered this - they hadn't. Then the team set about establishing the possible medical implications for some blood disorders."

Professor Ian Deary, Director of the Centre for Cognitive Ageing and Cognitive Epidemiology (CCACE), who led the research, said: "The team is excited to have contributed this 'first' in the genetics of blood clotting. Within the team we are lucky to have experts in medicine, genetics and blood coagulation, who helped enormously in appreciating just how big a discovery this was. We are now following up these findings to establish their clinical significance."

The results are published in the *American Journal of Human Genetics*.

Provided by University of Edinburgh