New discovery on Giant Cell Arteritis sheds light on cause

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New research from Queen Mary University of London has revealed – for the first time – how the condition Giant Cell Arteritis (GCA) may be caused by a certain group of white blood cells called 'neutrophils'. GCA (also known as temporal arteritis) is a condition which causes severe inflammation in the blood vessels and primarily affects the elderly.

GCA is initially treated with a six-month course of high-dose steroids. This study, published today in the journal *Circulation Research*, has shown that despite what appears to be signs of improvement following the treatment, the neutrophils become altered in a severe way that could lead to stroke or blindness.

This is the only study of its kind to investigate the role of neutrophils in relation to GCA and the discovery was made by comparing blood samples from patients suffering from vascular diseases. Patients with GCA, recruited to Southend University Hospital and Hammersmith Hospital, had blood samples taken within 48 hours of beginning steroid therapy, and again at 1, 4 and 24 weeks into treatment. Researchers examined these samples by isolating the neutrophils and studying its behaviour.

Mauro Perretti, lead author and Professor of Immunopharmacology, Queen Mary University of London, comments:

"We are very excited by this discovery and hope our findings will eventually lead to better clinical insight into whether a patient with GCA is really improving with treatment. It is commonplace for patients to come off therapy after six months but our research shows this may be too early for many. A GCA patient may appear to have recovered, but these findings reveal how changes and complications in the circulatory system could cause serious illness, such as stroke or even death. We hope our study will lead to doctors monitoring the status of their patients' neutrophils in order to fully and truly assess disease progression and therapeutic control."

The research was a collaborative four-year effort led by Professor Mauro Perretti and colleagues Professor Bhaskar Dasgupta, Head of Rheumatology at Southend University Hospital, and Professor Justin Mason who leads on vascular Inflammation at Hammersmith Hospital.

In the UK, it is estimated that about one in every 4,500 people will develop a new case of giant cell arteritis each year. The condition is age-related and only tends to affect adults over the age of 50, and more commonly adults over 60 years old. The condition is three times more common in women than in men and it also seven times more common in white people than in black people*.

More information: * Statistics taken from NHS website www.nhs.uk/Conditions/giant-ce … es/Introduction.aspx

Provided by Queen Mary, University of London