It’s in your blood: Links found between blood type and risk of cognitive decline

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A pioneering study conducted by leading researchers at the University of Sheffield has revealed blood types play a role in the development of the nervous system and may cause a higher risk of developing cognitive decline.

The research, carried out in collaboration with the IRCCS San Camillo Hospital Foundation in Venice, shows that people with an 'O' blood type have more grey matter in their brain, which helps to protect against diseases such as Alzheimer's, than those with 'A', 'B' or 'AB' blood types.

Research fellow Matteo De Marco and Professor Annalena Venneri, from the University's Department of Neuroscience, made the discovery after analysing the results of 189 Magnetic Resonance Imaging (MRI) scans from healthy volunteers.

The researchers calculated the volumes of grey matter within the brain and explored the differences between different blood types.

The results, published in The Brain Research Bulletin, show that individuals with an 'O' blood type have more grey matter in the posterior proportion of the cerebellum.

In comparison, those with 'A', 'B' or 'AB' blood types had smaller grey matter volumes in temporal and limbic regions of the brain, including the left hippocampus, which is one of the earliest part of the brain damaged by Alzheimer's disease.

These findings indicate that smaller volumes of grey matter are associated with non-'O' blood types.

As we age a reduction of grey matter volumes is normally seen in the brain, but later in life this grey matter difference between blood types will intensify as a consequence of ageing.

"The findings seem to indicate that people who have an 'O' blood type are more protected against the diseases in which volumetric reduction is seen in temporal and mediotemporal regions of the brain like with Alzheimer's disease for instance," said Matteo DeMarco.

"However additional tests and further research are required as other biological mechanisms might be involved."

Professor Annalena Venneri added: "What we know today is that a significant difference in volumes exists, and our findings confirm established clinical observations. In all likelihood the biology of blood types influences the development of the nervous system. We now have to understand how and why this occurs."

Additional information

To view the full study please visit http://www.sciencedirect.com/science/article/pii/S0361923015000805

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Contact

For further information please contact:

Amy Pullan
Media Relations Officer
University of Sheffield
0114 222 9859
a.l.pullan@sheffield.ac.u

Company Contact:

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