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Media Release

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Age of multiple sclerosis onset linked to latitude

A large international study led by the University of Tasmania's Menzies Institute for Medical Research has found that the age at which symptoms of multiple sclerosis (MS) first start is strongly linked to latitude.

The lead author of the study, Menzies' neuroscientist and clinician Professor Bruce Taylor, said that each 10° increase in distance from the equator was associated with a 10-month earlier onset of symptoms.

MS is thought to be caused by a complex interplay of genetic and environmental factors, including latitude and/or exposure to sunlight and vitamin D levels.

But until now it was not clear whether latitude might also affect the age at which symptoms first start. In an effort to find out, the research team drew on an international database of more than 22,000 MS patients from 52 centres in 21 countries in Europe, North and South America, Asia Minor, South Asia and Australia.

The latitude of each of the centres was divided into lower than 40°, 40-50°, and higher than 50°. The average amount of winter ultraviolet B (UVB) sunlight—the type involved in vitamin D manufacture in the skin—was calculated from information supplied by the Solar Radiation Database service.

More than 80% of the patients in the study were from the northern hemisphere, with around two-thirds (67%) from Europe. Around one in six (just under 16%) were from Australia, including around 300 people with MS from Tasmania.

The average age at which symptoms first appeared was around 32. But after taking account of potentially influential factors, it emerged that each 10° increase in latitude was associated with a 10 month earlier start of symptoms, with those furthest from the equator starting their symptoms almost two years earlier than those closest to the equator.

A similar pattern emerged for exposure to UVB, with those getting the smallest dose during the winter months nearly two years ahead of those who got the largest dose.

Consistent with previous work, those with the primary progressive form of MS had a significantly later age of onset (around nine years later), compared to those with the more common relapsing-remitting form of MS.

This is an observational study, so no firm conclusions can be drawn about cause and effect, but does suggest strongly that the factors that are associated with the well-described latitudinal gradient of MS risk also affect a measure of MS disease severity (the timing of the onset of the disease).

In common with known data on the incidence and prevalence of MS, nearly three out of four of the participants were women, and nearly all (91.5%) had the relapsing-remitting type of MS, which typically starts earlier than the progressive type.

The research has been published online in the ***Journal of Neurology Neurosurgery & Psychiatry***.

<http://jnnp.bmj.com/lookup/doi/10.1136/jnnp-2016-314013>

Information released by:

Miranda Harman
Marketing and Communications Manager
Menzies Institute for Medical Research
University of Tasmania
Tel: +61 427 199 562
Email: Miranda.harman@utas.edu.au