Levels of vitamin D in newborn babies and multiple sclerosis show no connection

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(Medical Xpress)—There was no association between levels of vitamin D in newborn babies and the risk of developing multiple sclerosis in adulthood. This is the observation made by researchers at Karolinska Institutet in a newly published study. The hypothesis could be tested with the help of the unique biobanks available in Sweden and at KI.

Multiple sclerosis (MS) is a chronic disease that affects the central nervous system, i.e., the brain and the spinal cord. Approximately 17,000 people in Sweden suffer from MS with the disease causing inflammations and lesions on the nerve fibres, preventing impulses from being received as they should be.

One hypothesis that has been widely discussed in recent years is on the link between low vitamin D levels in newborn babies and the risk of developing MS in adulthood. This hypothesis is based, amongst other things, on studies that have shown that those born in the spring have an increased risk of suffering from the disease when compared to those born in the autumn. The theory is that low vitamin D levels resulting from limited sun exposure during pregnancy increase the risk of MS in children born after the winter.

For the first time, researchers at Karolinska Institutet have been able to test this hypothesis which until now has only been assessed by indirect observations., Vitamin D levels at the birth of MS sufferers were measured and compared with those of control persons. The results have been published in the journal *Annals of Neurology*.

"We could not see any association between levels of vitamin D at birth and risk of MS in adulthood," says Peter Ueda, researcher at the Department of Clinical Neuroscience and one of the researchers behind the study led by Tomas Olsson, Professor of Neurology at the same department and Lars Alfredsson, Professor at the Institute of Environmental Medicine.

"However a weaker link cannot be ruled out, nor can the link be ruled out for people with certain genes."

"There are several reasons why the link between vitamin D at birth and later risk of MS has not been directly assessed previously," explains Peter Ueda. As MS is a relatively uncommon disease, access to an entire population's worth of blood samples that have been stored since birth would be required in order to provide reliable results. It must also be possible to trace the blood samples, preferably more than 30 years back in time– as this is the age around which the disease develop.

"Such biobanks are uncommon, however one can be found in Sweden. This study could be conducted due to the unique possibilities for monitoring and follow-up of patients in Sweden," he says.

The study included 459 participants with MS and 663 healthy control participants. The participants were gathered from the EIMS project led by the Institute of Environmental Medicine at Karolinska Institutet in collaboration with neurology departments at hospitals in all Swedish counties. Each patient diagnosed with MS – in addition to control persons matched based on sex, age and place of residence – was asked to provide a blood sample and answer a questionnaire. The information is then saved and used for studies on the factors that cause MS.

Vitamin D levels from the time of birth of MS patients and their respective controls were determined with the help of the PKU register

which contains blood samples from newborn Swedish people from 1975 onwards. For measuring vitamin D levels (25-hydroxy vitamin D) in dried blood samples, a a method developed by researchers at the University of Queensland, Australia was used.

Peter Ueda explains how results from the previously mentioned month of birth studies, that identified how those born in the spring had an increased risk of MS, had hinted of a potential opportunity to prevent a significant number of MS cases by ensuring that vitamin D levels in pregnant women are not too low.

"However, our results do not support the hypothesis of such a possibility for reducing MS risk," he explains.

The lack of a link between vitamin D levels in newborns and the risk for MS remained, even when the researchers took into account certain factors that could affect the results – for example, month of birth, and the geographical latitude of birth, in as well as sun exposure and intake of vitamin D in adult age.

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