

Information for patients from JNNP

Low vitamin D linked to higher MS rates in north of Ireland

Low levels of vitamin D, combined with genetic factors, may help to explain higher rates of multiple sclerosis in northern areas of Ireland, a new study reports.

What do we know already?

Researchers have long known that multiple sclerosis (MS) is more common in areas that are farther from the equator. In the British Isles, for example, the disease is more common in northeast Scotland and the Orkney and Shetland Islands. It is also more frequent in the north of Ireland than in the south.

No one knows for certain why MS rates vary by latitude, but both genetic and environmental factors probably play a role. An MS-linked gene called the HLA-DRB1*1501 allele, for example, is more common among people in northern European countries. And one possible environmental factor is the lower levels of sunlight in areas further from the equator.

Our bodies need ultraviolet B light from the sun to produce vitamin D. Researchers are only beginning to understand the wide-ranging effects vitamin D has on the body, but it's notable that people living further north often have low levels of this nutrient. It's possible that low vitamin D might trigger MS in people genetically prone to the disease.

To explore the possible link with vitamin D and MS, the new study looked at people living in three areas of Ireland: Donegal, which is in the north; Wexford, which is in the south; and southeast Dublin, which is in the middle. The researchers took blood samples from people with and without MS to check their vitamin D levels and whether they had the HLA-DRB1*1501 allele. They also used data from the most recent Irish National Census to find out how common MS was in the three areas studied.

What does the new study say?

Not unexpectedly, people in Donegal were more likely to have MS than those in the areas further south.

When the researchers looked at all the areas together, they found that average vitamin D levels were similar for people with and without MS. However, the percentage of people with very low vitamin D was higher among those with MS (28.3 per cent) than among those without the disease (19.2 per cent).

The findings were similar when the researchers took into account whether people were taking vitamin D supplements or not.

Looking at the areas individually, the researchers found that people in southeast Dublin had higher levels of vitamin D, on average, than people in Donegal and Wexford. Southeast Dublin also had the lowest rate of MS. On the genetics side of the equation, 62.9 per cent of people with MS had the HLA-DRB1*1501 allele, compared with only 35.2 per cent of people without the disease. The frequency of this gene was higher among people with MS in Donegal (69 per cent) than among those in Wexford (63 per cent) and southeast Dublin (52 per cent).

Taken together, these findings suggest that both genetic factors and vitamin D levels may play a role in higher rates of MS in the north of Ireland.

How reliable are the findings?

This was a well-designed study, and its results should be fairly reliable. However, this type of study can't show cause and effect. So although low levels of vitamin D were more common in people with MS, it's not clear whether this actually played a role in their disease. For example, it's possible that some people had normal vitamin D levels when they developed their disease.

We also can't be certain whether these findings apply to people living outside of Ireland.

Where does the study come from?

The study was conducted by researchers in Dublin. It received funding from MS Ireland.

What does this mean for me?

This study suggests that low vitamin D, along with genetic factors, may increase the risk of MS.

Although there's nothing you can do about the genes you're born with, your vitamin D level is something you can change, by getting more sunshine, eating more vitamin D-rich foods or taking supplements. Whether this might lower your risk of MS is not yet clear. However, we do know that vitamin D is important in other respects, such as maintaining strong bones.

What should I do now?

If you're concerned about your vitamin D level, talk to your doctor. A simple blood test can tell you whether your level is low.

Lonergan R, Kinsella K, Fitzpatrick P, et al. Multiple sclerosis prevalence in Ireland: relationship to vitamin D status and HLA genotype. *J Neurol Neurosurg Psychiatry* 2011;**82**:317-22. <http://jnnp.bmj.com/content/82/3/317.full>

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