

Multiple sclerosis: There is no individual MS gene

May 30 2012



Around 10,000 people in Austria suffer from multiple sclerosis (MS). It is a disease whose exact cause remains unclear. “It is very likely due to a combination of genetic and environmental factors. But there is no individual 'MS gene’”, said Karl Vass from the University Department of Neurology at the MedUni Vienna to mark the occasion of International MS Day on Wednesday. In two studies which featured considerable involvement of the MedUni Vienna, the role of the MHC gene has now been confirmed in the development of multiple sclerosis, and it has been discovered that the diagnostic procedures used for adults are also effective for children.

Multiple sclerosis in children is rare. Five per cent of all cases of [MS](#)

start at a very young age. It is usually teenagers who are affected. Says Vass: “This may be due to the development of autoimmunity during puberty.” In a multicentre study led by Barbara Bajer-Kornek from Karl Vass’s team, 50 young MS [patients](#) were investigated at the time their disease first manifested itself. It was found that the diagnostic procedures used for adults, such as MRI scans, cerebrospinal fluid analysis or electrophysiological investigations, also yield good results in young people and that consequently “off-label” drugs - with the doses for adults calculated appropriately for children, since there are usually no studies involving such drugs - are the right way forward, says Vass.

A timely diagnosis generally has a very important role to play in the treatment of multiple sclerosis. Says Vass: “The earlier we are able to establish a diagnosis of MS, the more effectively we are able to respond and draw conclusions regarding the right treatment.” Vienna General Hospital treats around 1,000 patients per year. The prospects for MS patients have improved markedly in recent years. “Anyone given a diagnosis of MS nowadays has much better chances of being able to live their lives with less disability and a better quality of life.”

Vass is confident that new drugs will improve patients’ outlook even further. These are drugs that need to be tested in studies: “Patients involved in a study also get much better care and have a better prognosis,” says the neurologist, who is keen to allay any scepticism about taking part in studies.

On the quest for the ‘MS genes’ A combination of genetic and environmental factors is responsible for the development of [multiple sclerosis](#). A “north/south divide” has also been noted: In Sweden and Scotland, for example, there are twice as many cases of MS as in Austria. Says Vass: “This may have something to do with the sun and the body’s metabolism of vitamin D.

”MS is not inherited, “but if one parent had MS, then the general risk increases from 1:1000 to 1:100,” explains the MedUni researcher. This also confirms that there is no ‘individual’ MS gene responsible for triggering the onset of the disease.

900 Austrian patients with MS were investigated in a second multicentre study carried out in collaboration between the MedUni Vienna, the Medical University of Innsbruck, SMZ-Ost in Vienna and the Medical University of Graz. This study also demonstrated the importance of the MHC gene in the development of the disease. Says Vass: “This gene is only involved in around four per cent of patients, however.” Nevertheless, this finding represents an important step towards identifying the genes that influence the onset of the condition.

More information: Multiple Sclerosis Journal: „Evaluation of the 2010 McDonald multiple sclerosis criteria in children with a clinical isolated syndrome.” B. Kornek, et al. *Mult Scler*, 23 April 2012. [DOI: 10.1177/1352458512444661](https://doi.org/10.1177/1352458512444661)

Neurogenetics: “Replication study of multiple sclerosis (MS) susceptibility alleles and correlation of DNA-variants with disease features in a cohort of Austrian MS patients.” M. Schmied, et al. *Neurogenetics*, 2012 May, 13(2);181-187, [DOI: 10.1007/s10048-012-0316-y](https://doi.org/10.1007/s10048-012-0316-y)

Provided by Medical University of Vienna

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