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Women With Multiple Sclerosis More Likely to Have MS-Related Gene Than Men

Women who have Multiple Sclerosis (MS) are more likely to have a gene associated with multiple sclerosis than men with the disease and it is this gene region where environment interacts with the genetics, according to a study published in the January 5, 2011, online issue of Neurology®, the medical journal of the American Academy of Neurology.

Research has shown that the number of people diagnosed with MS has been rising, and the rate has been rising faster for women than for men.

The cause of MS is not known, but evidence suggests that it is triggered by environmental factors in people who are genetically susceptible to the disease. The main gene associated with MS is the Human Leukocyte Antigen (HLA) class II gene, but most of the risk comes from interaction of both parental genes.

The study examined the HLA genes of 1,055 families with more than one person with MS in the family. The genes of 7,093 people were tested, which included 2,127 people with MS. The researchers looked at what the HLA genes were for the people with and without MS, whether people with MS inherited the susceptibility gene from their mother or their father, and what the relationship was between people in the same family with MS.

The researchers found that women with MS were 1.4 times more likely to have the HLA gene variant associated with MS than men with MS. A total of 919 women and 302 men had the HLA gene variant, compared to 626 women and 280 men who did not have the gene variant. This fits with other research by this research group showing that the environment interacts with this gene region to produce modification in risk associated with it. This appears to be an epigenetic mechanism.

“Our findings also show women with the HLA gene variant are more likely to transmit the gene variant to other women in their families than to men,” said study author George C. Ebers, MD, FMedSci, of the University of Oxford in the United Kingdom and a member of the American Academy of Neurology.

The researchers also determined that second-degree relatives such as aunts and their nieces or nephews were more likely to inherit the gene variant than first-degree relatives such as siblings or parents and children.

“It appears that the less the genetic sharing between individuals, the higher the interaction is between female sex and inheritance of the HLA gene variant,” said Orhun Kantarci, MD, of the Mayo Clinic in Rochester, Minn., and a member of the American Academy of Neurology, who wrote an editorial on the study. “These findings pave the way for future studies of these genes, hopefully to advance our understanding of inheritance of complex diseases such as MS.”

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Source:
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