

Drug Information Office / Jordan University of Science and Technology

New study finds that Obesity Linked to Increased Risk for MS

Obesity in childhood or adolescence is associated with an increased risk of pediatric-onset and adult-onset multiple sclerosis (MS).^{1,2}

For the current study, body mass index (BMI) was calculated for 210 patients with MS and 210 controls of the same age and sex who did not have MS at ages 15 and 20 years and at the time of the study.¹

Results showed that people who are obese (BMI > 30 kg/m²) at age 20 are twice as likely to later develop MS as people who are not obese.¹

The researchers also measured levels of various hormones and cytokine-producing cells, and found that BMI correlated directly with serum leptin levels, but inversely with 25(OH) vitamin D levels. In addition, leptin exerted opposite effects on regulatory and CD4+ effector T cells, promoting inflammatory responses, potentially representing a putative link between obesity and autoimmunity in MS which could potentially explain the link between obesity and MS.¹

Another study postulated the following mechanisms underlying this association; obesity is associated with chronic low-grade inflammation, and adipokines modulate immune function, higher body mass index (BMI) is associated with lower blood levels of 25-hydroxyvitamin D in childhood and adolescence, and vitamin D insufficiency is associated with an increased risk of MS.^{2,3}

It is not known whether the risk of MS conferred by obesity varies according to genetic background, but there are interactions between the human leukocyte antigen (HLA) genotype and other environmental risk factors, including Epstein-Barr virus and smoking.^{2,4}

In conclusion, the current evidence collectively suggests prevention of adolescent obesity may lower the risk of developing MS, predominantly among people with a genetic susceptibility to the disease.

Prepared by: Pharm.D : Eshraq Al-abweeny

30/3/2014

References:

- 1- Obesity Linked to Increased Risk for MS, March 12, 2014.
<http://www.medscape.com/viewarticle/821861>
- 2- M. RA, B.CA. Obesity and HLA in multiple sclerosis: Weighty matters. *Neurology*. 2014 Mar 11;82(10):826-7. doi: 10.1212/WNL.000000000000195. Epub 2014 Feb 5.
- 3- J. Pakpoor, J. Pakpoor. Childhood obesity and risk of pediatric multiple sclerosis and clinically isolated syndrome. *Neurology*. October 8, 2013 vol. 81 no. 15 1366. doi: 10.1212/WNL.0b013e3182a7af5f
- 4- H. AK, et al. Interaction between adolescent obesity and HLA risk genes in the etiology of multiple sclerosis. *Neurology*. 2014 Mar 11;82(10):865-72. doi: 10.1212/WNL.000000000000203. Epub 2014 Feb 5.