Obesity worsens disability in multiple sclerosis

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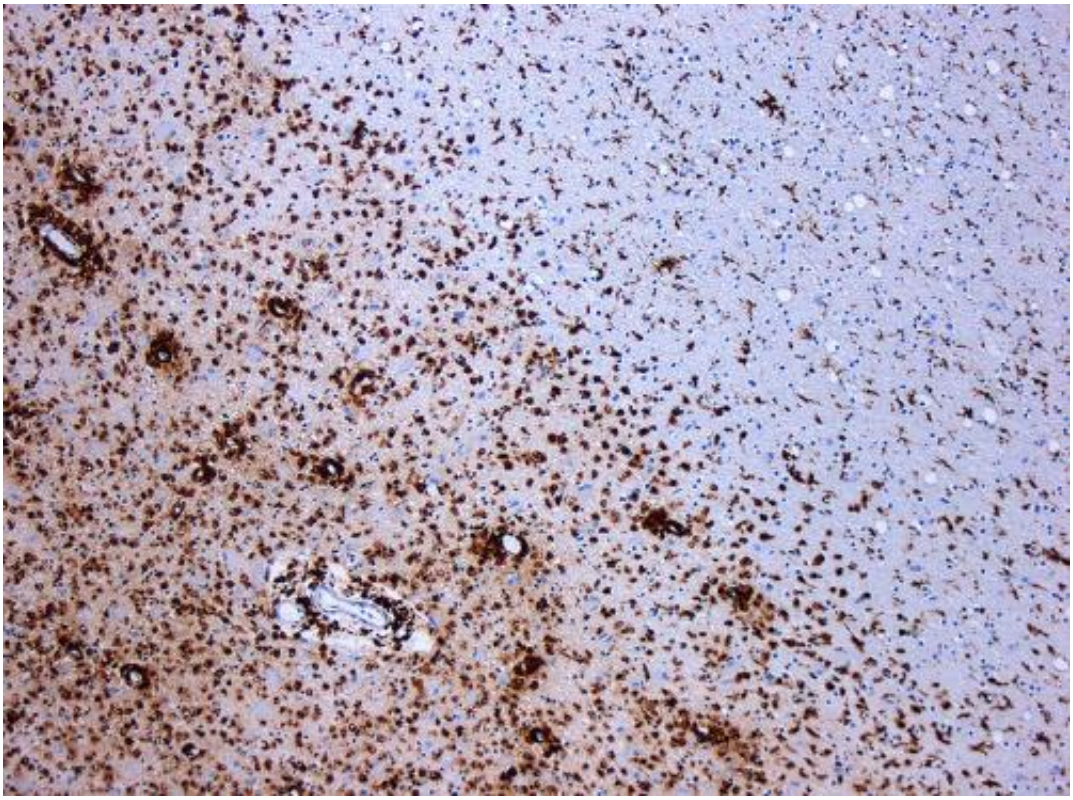

Demyelination by MS. The CD68 colored tissue shows several macrophages in the area of the lesion. Original scale 1:100. Credit: CC BY-SA 3.0 Marvin 101/Wikipedia

Obesity is an aggravating factor in relapsing-remitting multiple sclerosis, the most common form of the disease. A recent study by the Unit of Neurology and Neurorehabilitation of the I.R.C.C.S. Neuromed in

Pozzilli (Italy) confirms that lipid metabolism can have a role in determining the severity of multiple sclerosis.

Published in the *Multiple Sclerosis Journal*, the research, involving 140 patients, showed that at the time of diagnosis obese patients have a greater risk of presenting higher EDSS (Expanded Disability Status Scale) score, the tool commonly used to assess the severity of multiple sclerosis. Neuromed researchers have also investigated, from a biochemical point of view, the relationship between multiple sclerosis and excessive body weight, analyzing the levels of inflammation in the central nervous system and the lipids concentrations in the blood (cholesterol and triglycerides).

Multiple sclerosis is an inflammatory process, and the authors of the study have focused their investigation on some molecules involved in inflammation. Analysis of cerebrospinal fluid (collected with lumbar puncture) showed in obese patients higher levels of interleukin-6 (IL-6) and leptin, two molecules well known as promoters of the inflammatory process. In contrast, interleukin-13 (IL-13), with anti-inflammatory action, was reduced. Regarding lipid profile, higher levels of triglycerides and a higher ratio of total to HDL cholesterol have been correlated to higher IL-6 levels.

"This study," says Mario Stampanoni Bassi, Neurologist at Neuromed, "confirms that obesity is associated with greater symptomatic severity of relapsing-remitting multiple sclerosis. In particular, the analysis of cerebrospinal fluid has highlighted the role of leptin produced by fat cells. Previous studies have shown that leptin is directly involved in the complex relationship between metabolism and inflammation. Our results therefore suggest that excessive body weight, or altered lipid profile, are associated to increased central inflammation causing a worse clinical expression of the disease ."

"It is important," comments Diego Centonze, Full Professor of Neurology at the Tor Vergata University and Head of the Neurology Unit at Neuromed, "to precisely define the relationship between obesity, blood lipids and multiple sclerosis. Body weight and dyslipidemias are implicated in various chronic inflammatory conditions, but they are also factors that strictly depend on lifestyle. Specific strategies, such as diet or increased physical activity, may therefore pave the way to the possibility of improving the condition of patients with multiple sclerosis, contrasting the increase of disability over time ."

More information: Mario Stampanoni Bassi et al, Obesity worsens central inflammation and disability in multiple sclerosis, *Multiple Sclerosis Journal* (2019). DOI: 10.1177/1352458519853473

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