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Body Fat Distribution and Plasma Lipid Profiles of Patients with Multiple Sclerosis

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**Abstract:** This study was performed to determine the body fat percentage, fat distribution and plasma lipid-cholesterol levels of patients with multiple sclerosis (MS). We compared the body fat percentage, distribution and lipid profile in 22 patients with definitive diagnosis of MS and age and height matched 16 healthy control subjects on normal diets. Poser criteria was used to determine the MS diagnosis. Body fat percentage and distribution were evaluated anthropometrically by measuring skin fold thickness from 7 different reference points of the body. The parameters of the body composition were obtained by using the equations of Durning, Womersly and Siri. Body fat distribution was calculated by using Mueller's formulation. The plasma levels of total cholesterol, high-density lipoprotein-cholesterol (HDL-C), low-density lipoprotein-cholesterol (LDL-C), very low density lipoprotein-cholesterol (VLDL-C) and triglycerides were measured spectrophotometrically in patients and healthy volunteers. The mean body fat percentage of male MS patients was significantly the lower than in the male controls ( $P < 0.05$ ). Body mass index and lean body mass of MS patients did not differ from the controls of either sex. The ratio of central to peripheral body fat was lower in all MS patients. Although male patients had a lower ratio, the difference with the control group was not statistically significant. The ratio of upper to lower body fat in male patients was significantly higher than in the controls ( $P < 0.05$ ). This difference was not present in the female population. Mean plasma total cholesterol levels were slightly higher in MS patients than in healthy volunteers, but this was not significant. Mean plasma HDL-C and LDL-C levels of the MS patients were not statistically different from the values of the controls. The levels of plasma VLDL-C and triglycerides of patients were significantly higher than the levels of healthy subjects ( $P < 0.05$ ). Our results show that total subcutaneous fat stores of the body were diminished in male MS patients. Truncal and lower body fat of MS patients was reduced and upper body fat was increased when compared to the controls. Plasma levels of VLDL-C and triglycerides were also found to be higher in MS patients. It is considered that lipid metabolism can be influenced by MS. Further studies are needed to investigate how the fat storage process changes and to understand the importance of alterations in the plasma lipid profile in the course of MS.

**Key Words:** multiple sclerosis, lipid metabolism, body mass index, body composition

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