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Lipid metabolism in anti-N-methyl-D-aspartate receptor encephalitis

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Background & Aim: Lipid metabolism has been implicated in autoimmune disorders, but the relationship with anti-N-methyl-D-aspartate receptor (anti-NMDAR) encephalitis is unclear. The aims were to evaluate the role of serum lipids in anti-NMDAR encephalitis.

Methods: Serum lipids were evaluated in 68 patients with anti-NMDAR encephalitis and 68 age- and sex-matched healthy controls (CTLs). Follow-up evaluations of 32 out of the 68 patients with anti-NMDAR encephalitis were conducted 3 months after admission. Modified Rankin scale (mRS) scores and clinical and cerebrospinal fluid parameters were evaluated in all anti-NMDAR encephalitis patients.

Results: Compared with CTLs, patients with anti-NMDAR encephalitis had significantly lower serum high-density lipoprotein cholesterol (HDL-C) and apolipoprotein A-I (apoA-I) levels and significantly higher serum apolipoprotein B (apoB) levels and apoB/apoA-I ratio. ApoB/apoA-I ratio was positively associated with mRS. Follow-up evaluations revealed that serum total cholesterol (TC), apoA-I levels and HDL-C levels significantly increased, mRS scores were significantly lower than those before treatment and that changes of HDL-C levels were negatively associated with changes of mRS.

Conclusion: Low levels of serum HDL and apoA-I, and high levels of apoB are found in anti-NMDAR encephalitis. ApoB/apoA-I ratio was associated with disease severity. The levels of HDL and apoA-I steadily increase after 3 months treatments.

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