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Reply to “A link between hyperlipidemia and lithium?” by G Bardini et al

To the Editor:

In 2007, we hypothesized that the excessive hyperlipidemia of a 38-year–old woman with a peak of serum triglycerides (TG) of 9757 mg/dL (111.2 mmol/L) and of serum total cholesterol of 1178 mg/dL (30.5 mmol/L) in April 2006, making plasmapheresis mandatory, might have been caused by carbolithium treatment [1]. Other causes had been excluded in this very patient. The patient is still under our surveillance; and after withdrawal of the carbolithium treatment, her lipid values are now well controlled with gemfibrozil (600 mg bid) and nicotinic acid (500 mg). In February 2008, her serum TG were 219 mg/dL (2.5 mmol/L) and serum cholesterol was 188 mg/dL (4.9 mmol/L). The body mass index is now 30.1 kg/m^2.

Interestingly, our hypothesis is supported by the report of Bardini et al [2]. The authors describe the case of a 35-year–old man who developed dyslipidemia with a peak in TG of 2116.8 mg/dL (23.9 mmol/L) and total cholesterol of 458 mg/dL (11.8 mmol/L) in a carbolithium-dose–dependent manner.

Similarities between the 2 cases are as follows:

1. There was no history of preexisting dyslipidemia in the 2 cases (confirmed by laboratory measurement before onset of carbolithium therapy in our patient). Although the state in the Italian case is not known exactly, a preexisting dyslipidemia would very likely have been observed in a routine laboratory because the patient had been under antipsychotic therapy since 1987. Given that carbolithium is the culprit in these 2 cases, the drug seems to initiate dyslipidemia and not to aggravate a preexisting dyslipidemia.
2. The 2 patients were not only treated with carbolithium, but also with a “cocktail” of other antipsychotic drugs during the course of their disease. A possible action or an interaction together with carbolithium on the lipid metabolism should be considered.

Bardini et al observed a low level of insulin-like growth factor binding protein–1 (IGFBP-1) in their patient and speculate about a possible lithium-induced inhibition in the production of IGFBP-1 typical for an insulin-resistant state and, thus, probably contributing to dyslipidemia. In our patient, we had not measured IGFBP-1. However, calculating the homeostasis model assessment of insulin resistance score in our patient (fasting insulin, 8.6 IU/mL; fasting glucose, 96 mg/dL = 5.33 mmol/L), it is 2, suggestive of insulin resistance, too. Because insulin resistance is not uncommon and usually does not lead to excessive hyperlipidemia, it may be just one among other (unknown) pieces of the puzzle. To my knowledge, there are no more recent experimental data on the possible role of carbolithium on lipid metabolism than those described in the letters here [3-5].

What should be kept in mind is that the dyslipidemia was not that excessive in the Italian patient compared with ours. Given that lithium impacts on lipid metabolism, it remains an intriguing question whether or not there are also other carbolithium-treated patients in whom a moderate elevation of serum lipids exists. However, this may be misinterpreted as a preexisting condition; and we suggest to compare prelithium lipid levels with those under therapy.

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