Cholesterol, depression and suicide

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Abstract

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We read with interest the excellent large-scale prospective study reported by Partonen et al (1999). They found that low serum total cholesterol appears to be associated with low mood and suicide. However, others have reported conflicting results (McCallum et al, 1994). Weidner et al (1992) found that patients on a cholesterol-lowering diet were associated with reductions in depression if they were instructed to increase fish consumption. This implied that differences in the composition of polyunsaturated fatty acids (PUFAs) might explain the conflicting finding. The PUFAs are classified into two main groups: omega-3 (or n-3) of which the parent essential fatty acid is alpha-linolenic acid (C18:3n-3), and n-6, of which the parent essential acid is linoleic acid (C18: 2n-6). Maes et al (1999) found that major depression is associated with: significantly decreased total n-3 fatty acids; increased monounsaturated fatty acids and C22: 5n3 proportions and increased C20:4n6/C20:5n3 and C22:5n6/C22:6n3 ratios; lower C22:4n6, C20:5n3 and C22:5n3 fractions in phospholipids; lower C18:3n3, C20:5n3 and total n3 fatty acids, and higher C20:4n6/C20:5n3 and n6/n3 ratios in cholesteryl esters; and lower serum concentrations of phospholipids and cholesteryl esters. These findings are consistent and have shown well-established positive correlation between depression and coronary artery disease. Many studies have documented evidence of hypothalamic-pituitary-adrenocortical axis hyperactivity within medication-free patients with major depression, including hypercortisolaemia (Raadsheer et al, 1994). Hypercortisolaemia can induce hypercholesterolaemia, hypertriglyceridaemia and hypertension. These are well known to be predisposing factors of cardiovascular disease. If low serum cholesterol concentrations were linked to increased depression, it would be difficult to interpret the correlation between depression and coronary artery disease. The relationship between cholesterol and depression may not be specific enough.