

Fatty acid composition in major depression: decreased omega 3 fractions in cholesteryl esters and increased C20: 4 omega 6/C20:5 omega 3 ratio in cholesteryl esters and phospholipids.

Maes M, Smith R, Christophe A, Cosyns P, Desnyder R, Meltzer H.

Clinical Research Center, University Department of Psychiatry, Antwerp, Belgium.

Recently, there were some reports that major depression may be accompanied by alterations in serum total cholesterol, cholesterol ester and omega 3 essential fatty acid levels and by an increased C20: 4 omega 6/C20: 5 omega 3, i.e., arachidonic acid/eicosapentaenoic, ratio. The present study aimed to examine fatty acid composition of serum cholesteryl esters and phospholipids in 36 major depressed, 14 minor depressed and 24 normal subjects. Individual saturated (e.g., C14:0; C16:0, C18:0) and unsaturated (e.g., C18:1, C18:2, C20:4) fatty acids in phospholipid and cholesteryl ester fractions were assayed and the sums of the percentages of omega 6 and omega 3, saturated, branched chain and odd chain fatty acids, monoenes as well as the ratios omega 6/omega 3 and C20:4 omega 6/C20:5 omega 3 were calculated. Major depressed subjects had significantly higher C20:4 omega 6/C20:5 omega 3 ratio in both serum cholesteryl esters and phospholipids and a significantly increased omega 6/omega 3 ratio in cholesteryl ester fraction than healthy volunteers and minor depressed subjects. Major depressed subjects had significantly lower C18:3 omega 3 in cholesteryl esters than normal controls. Major depressed subjects showed significantly lower total omega 3 polyunsaturated fatty acids in cholesteryl esters and significantly lower C20:5 omega 3 in serum cholesteryl esters and phospholipids than minor depressed subjects and healthy controls. These findings suggest an abnormal intake or metabolism of essential fatty acids in conjunction with decreased formation of cholesteryl esters in major depression.

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