Erythrocyte membrane fatty acid composition in obese patients


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The consumption of fat is directly related to the incidence of chronic diseases, mainly due to the type of lipid that makes up the diet. Polyunsaturated fatty acids play an important role in complex metabolic reactions being considered essential for health maintenance. Moreover, the saturated and trans fatty acids are associated with increased mortality and cardiovascular diseases. The fatty acid composition of membrane tissue may directly influence the organism metabolic reactions. Thus, knowledge of this composition is useful in assessing the risk of developed diseases and monitoring of dietary intake. This study aimed to characterize the fatty acid composition from erythrocytes membrane of twenty obese (BMI > 30 kg/m^2) and twenty lean (BMI 18.5-24.9 kg/m^2) women. The collected blood was centrifuged to separate red cells. The lipids from these cells were extracted, esterified and analyzed through gas chromatography. It was observed higher percentages of total saturated, monounsaturated, butyric (C4:0), elaidic (C18:1 Δ^9 t) fatty acids and lower percentages of oleic (C18:1 Δ^9), linoleic (C18:2 Δ^9,12) and arachidonic (C20:4 Δ^5,8,11,14) in obese in comparison to lean women (p<0.05). The results suggest that there are important differences in the composition of lipids from erythrocytes membrane associated with obesity. This possibly reflect an unfavorable dietary intake and can directly increase the risk of dyslipidemia, insulin resistance, among other comorbid conditions.

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