

Abstract

The Association between Body Fluid Rate with Plasma Lipid Profile, Independent of Adiposity in Young Adults [†]

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Abstract: Objectives: Body water is fundamental in human metabolism. The current study aimed to evaluate the associations between body fluid rate (BFR) with plasma lipid profiles, including triglycerides, total cholesterol, and high-density lipoprotein (HDL)/low-density lipoprotein (LDL) cholesterol, among apparently healthy young Chinese adults. Methods: The study subjects were from the phase 1 sample of the 'Carbohydrate Alternatives and Metabolic Phenotypes' study. After excluding those lacking blood samples, a total of 95 subjects with an average age of 22.6 years were included in the analysis. Total body water (TBW) and body fluid rate (BFR) were measured using bioelectrical impedance analysis (TANITA, BC-420). General linear regression was used to evaluate the associations between body fluid rate with plasma lipid profiles. Results: The mean (SD) of TBW was 39.7 (4.7) kg and 26.8 (2.2) kg for males and females, respectively, while the mean (SD) of BFR was 55.8 ± 3.1 and 50.4 ± 2.1 for males and females, respectively. After adjusting for age, sex, education attainment, smoking status, alcohol drinking habits, and physical activity level, negative associations (β , SE) were observed between BFR with triglycerides ($-0.06, 0.02, p < 0.001$) and LDL cholesterol ($-0.07, 0.02, p = 0.003$), while no significant associations were detected for total cholesterol ($-0.06, 0.03, p = 0.052$) and HDL cholesterol ($0.02, 0.01, p = 0.074$). These associations were not substantially changed with further adjustment of body mass index. In the stratified analysis by gender, the direction of the associations was not changed, but BFR was negatively associated with LDL cholesterol ($-0.09, 0.04, p = 0.049$) in males, and with triglycerides ($-0.05, 0.02, p = 0.043$) in females only. Conclusions: In apparently healthy young Chinese adults, BFR was negatively associated with triglycerides and LDL cholesterol, independent of body adiposity level.

Keywords: body fluid rate; lipid profile; adiposity



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