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Repeat Whole Blood Donation Correlates Significantly with Reductions in BMI and Lipid Profiles and Increased Gamma Glutamic Transferase (GGT) Activity among Nigerian Blood Donors

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ABSTRACT

Background: The effect of repeated blood donation on some biochemical values of healthy adult male blood donors in Calabar, Nigeria was studied. Methods: One hundred and fifty three (153) healthy repeat blood donors and 90 first time blood donors constituted the study population. Samples were analyzed using colorimetric procedures. Results: The BMI values of 24.4 ± 2.4 kg/ m^2 in the first time donors was significantly higher than the 21.7 ± 1.7 kg/m^2 obtained in repeat donors ($P < 0.001$). Among all the biochemical parameters, total cholesterol showed a significant change of 2.55 ± 0.74 mmol/l after repeated donations as compared to 3.45 ± 1.47 mmol/l in the first time donors ($P < 0.005$). Gamma glutamyl transferase (GGT) was significantly higher in repeat donors (70.5 ± 13.5 µl) than the first time donors (62.5 ± 13.3 µl) ($P < 0.05$). An LDL value of 1.02 ± 0.8 mmol/l in repeat donors was significantly lower than 1.69 ± 1.0 mmol/l in first time donors ($P < 0.05$). A VLDL value of 0.32 ± 0.2 mmol/l in repeat donors was equally lower than 0.44 ± 0.2 mmol/l obtained in the first time donors ($P < 0.05$). GGT showed positive correlation with lactate dehydrogenase (LDH) and low density lipoproteins (LDL) at $P < 0.05$ and $P < 0.01$ respectively among the repeat blood donors. Triglycerides showed a positive correlation with very low density lipoprotein (VLDL) among repeat donors at $P < 0.05$ significant level. Pearson correlation analysis also indicates that a significant positive relationship exists between GGT and low density lipoprotein ($r = 0.891$, $P < 0.001$). The regression analysis defined the relationship as linear ($y = 0.0578x + 36.87$; $r^2 = 0.7934$, $P < 0.05$). Conclusion: A reduction in the values of some lipid profiles and high GGT activity is associated with repeated blood donations in this study population. Repeated blood donation may play a significant role in reducing the incidence of heart disease.

KEYWORDS

Blood Donation; Gamma Glutamic Transferase; Body Mass Index; Lipid Profiles

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