

Cdx2 polymorphism of VDR gene and lipid profile in patients treated for acute lymphoblastic leukemia during childhood



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Introduction: Vitamin D activity is controlled by its receptor (VDR). Increased risk of obesity and metabolic disturbances among certain VDR alleles has been proven. This study was conducted to assess the association between Cdx2 (rs11568820) polymorphism of VDR gene (genotypes: AG, GG) and genetic susceptibility to components of the lipid profile in survivors of acute lymphoblastic leukemia (ALL) treatment during childhood.

Materials and Methods: The study group consisted of 81 survivors (31 girls) mean age 14,7, at least 1 year after successful ALL treatment. Control group consisted of 61 participants (35 girls) mean age 14,6. Lipid profile (triglycerides (TG), total cholesterol (TCH) and fractions (HDL, LDL)) and the VDR gene polymorphism were identified. The data were analyzed using the STATISTICA v. 13.0 package.

Results: GG genotype of Cdx. The average value of TCH was 173.40±33,19; HDL 52.90±12,05; LDL 102.50±28,39; TG 82.70±35,66. The lower level of HDL (statistically significant (p<0.02)) and higher level of average value of LDL, TG (both not statistically significant p>0.05)) were identified, comparing to control groups. Positive statistically significant (p<0.05) correlations between the levels of TCH and HDL, LDL; HDL and TG in a study group, were identified.
 AG genotype of Cdx. The average value of TCH was 154.56±20,45; HDL 51.69±8,78; LDL 90.25±15,25; TG 64.13±21,77. The average values did not differ significantly compared to the controls. Statistically significant positive correlations between TG and TCH, LDL, in a study group were identified. Significantly lower level of HDL have been found in study group compared to control group (52.55±11.37 and 57.10±11.63 (p=0.02)). In female group there was significantly higher level of HDL compared to males (51.97±11.76 and 57.41±10.94 (p=0.005)).

Conclusions: ALL patients with the GG genotype of Cdx2 polymorphism are predisposed to disturbances in lipid profile. The studies may allow earlier implementation of prophylaxis of the metabolic syndrome and more effective treatment of lipid disorders in this group of patients, which can reduce the number of complications including cardiovascular diseases in the future.



Chart 2
Average value of lipid profile among Cdx2 polymorphism



Chart 3
Average value of lipid profile among AG genotype

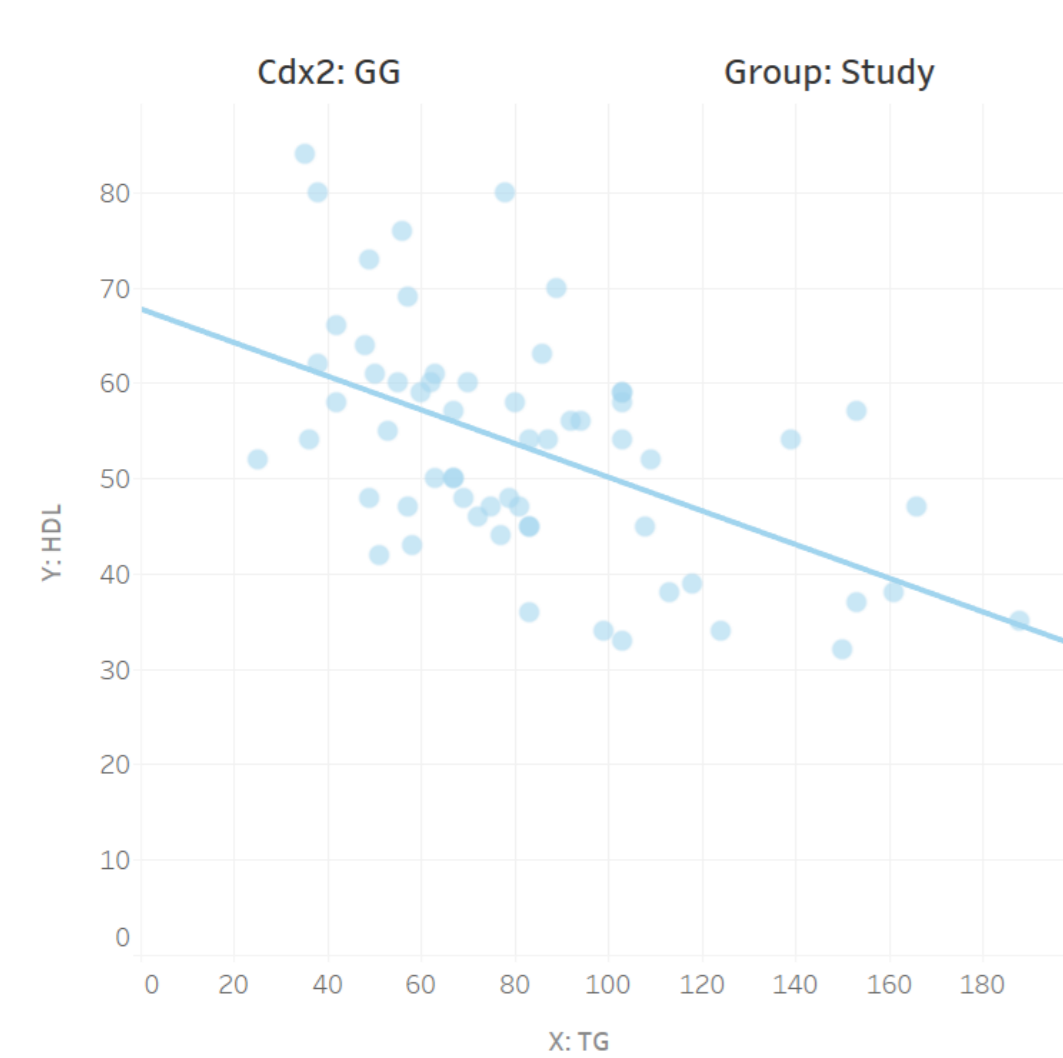
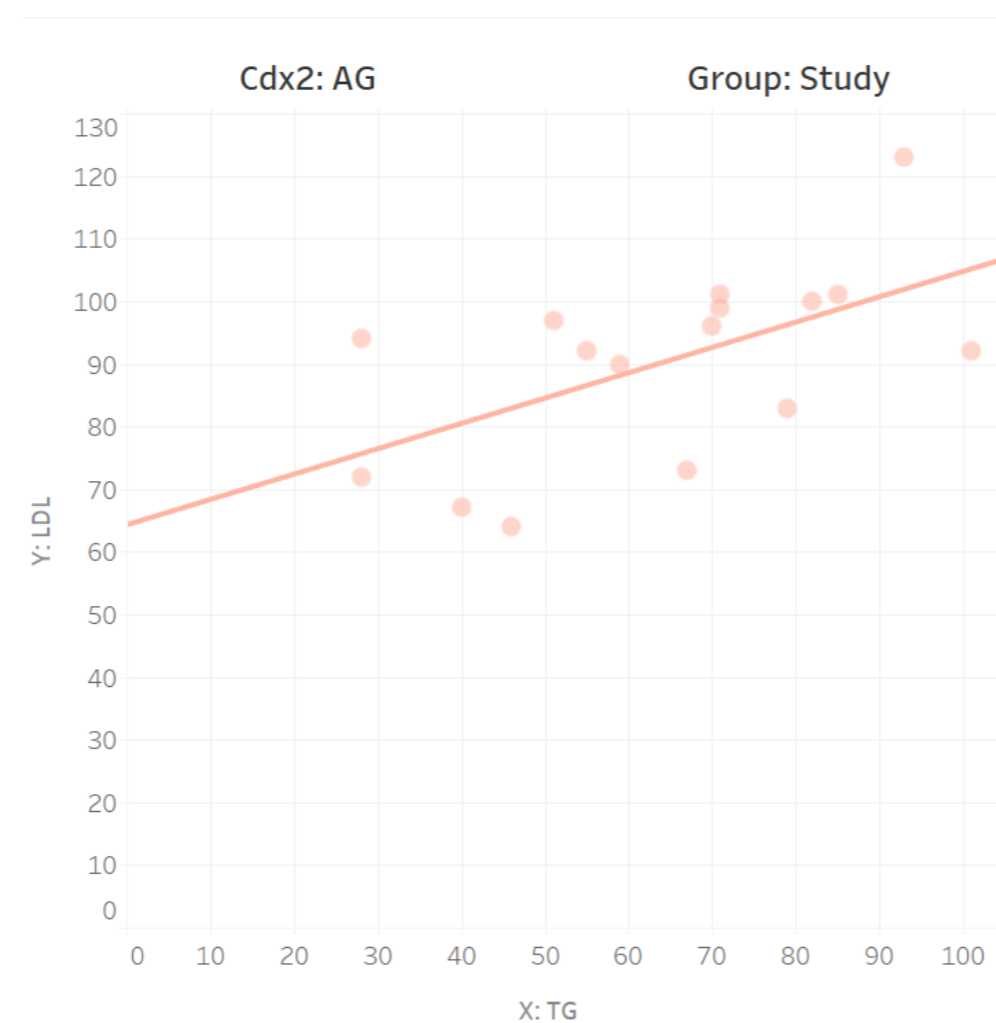
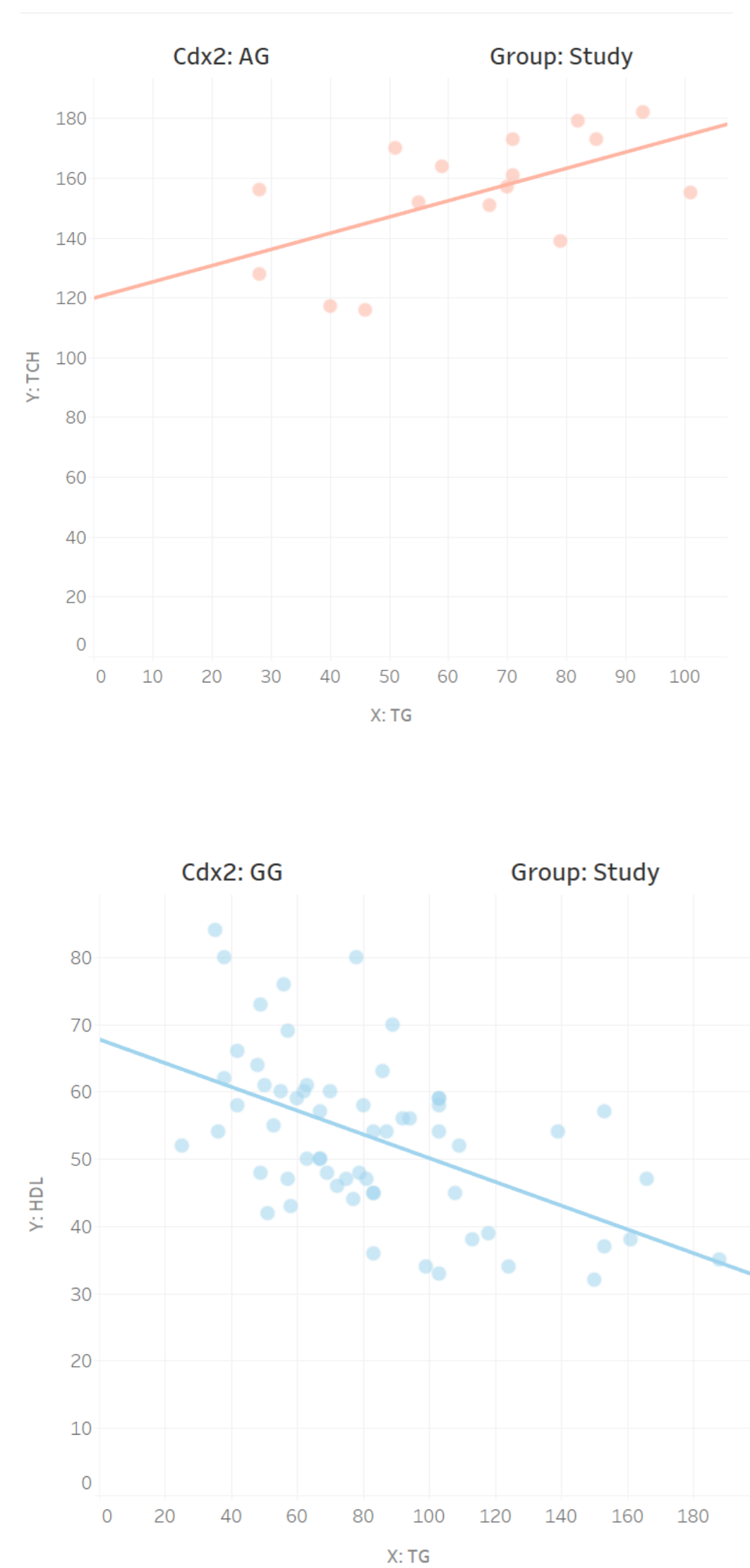


Chart 1
Correlation analysis between:
 - TG and TCH for AG
 - TG and LDL for AG
 - TG and HDL for GG

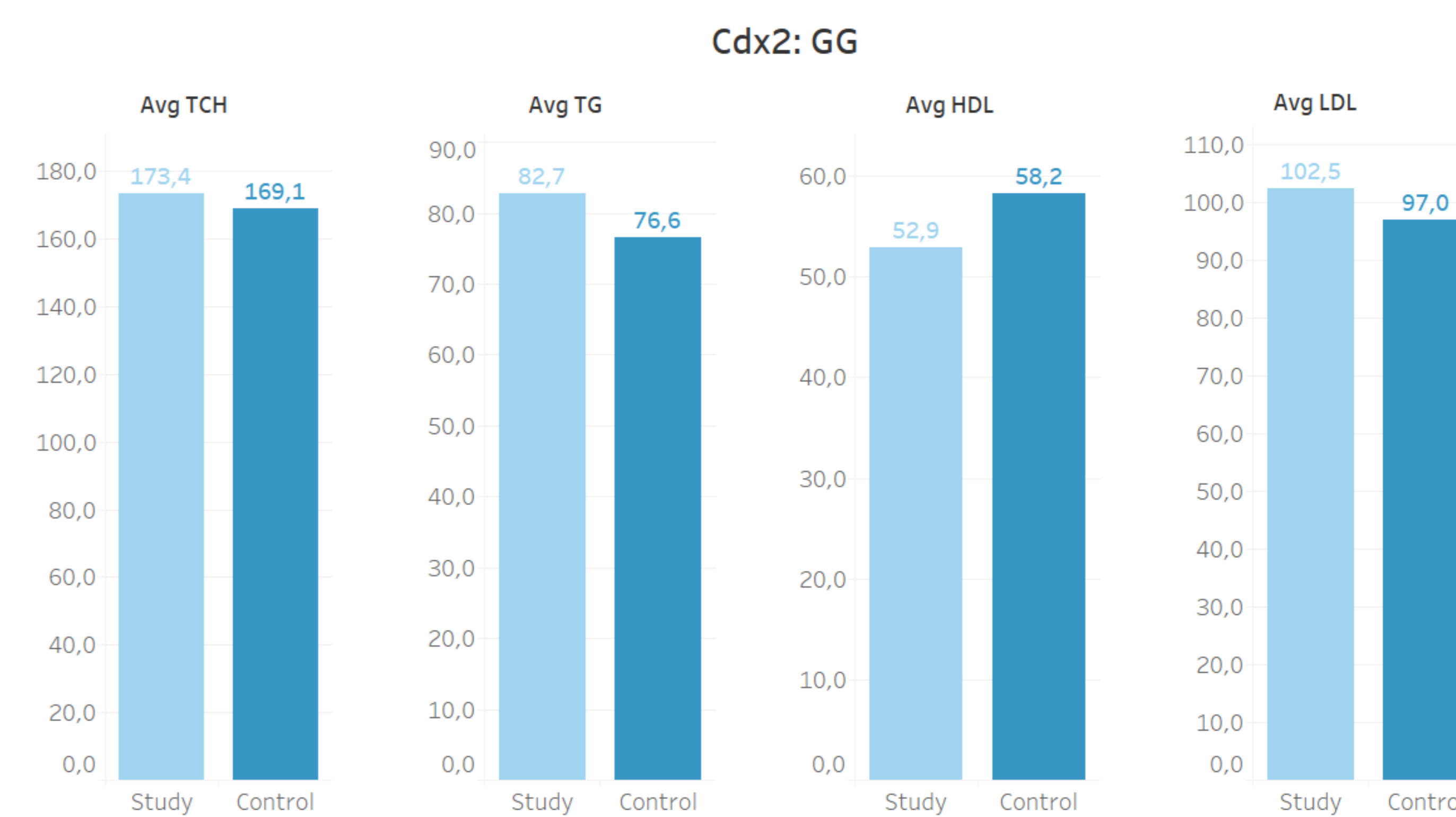


Chart 4
Average value of lipid profile among GG genotype