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The role of Multidrug Resistance-1 (MDR1) variants in response to atorvastatin among Jordanians

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Abstract: The MDR1 gene encodes for P-glycoprotein (P-gp), which is an efflux transporter at the cell membrane. The P-gp has wide substrate specificity for multiple medications including the lipid lowering drug, atorvastatin. In this study, we investigated the possible association between three common MDR1 gene polymorphisms (G2677T, C3435T, and C1236T), and the lipid lowering effect of atorvastatin among Jordanians. Lipid and lipoproteins were measured in blood samples collected from patients (n = 201) at baseline and during atorvastatin treatment. MDR1 polymorphisms were genotyped using polymerase chain reaction?restriction fragment length polymorphism. Both the TT genotype of G2677T and the TT genotype of the C3435T polymorphisms were associated with lower levels of low-density lipoproteins after atorvastatin treatment. However, the effects of atorvastatin on the levels of total cholesterol, triglycerides, and high-density lipoprotein, were not correlated with any of the genotypes in both polymorphisms. Finally, the C1236T polymorphism was not associated with the lipid lowering effect of atorvastatin. In conclusion, the MDR1 gene polymorphisms G2677T, and C3435T, but not C1236T were associated with the lipid lowering effect of atorvastatin among Jordanians.