

The Influence of Endothelial Nitric Oxide Synthase (eNOS) Genetic Polymorphisms on Cholesterol Blood Levels Among Diabetic Patients Type II on Aatorvastatin Therapy

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Abstract

BACKGROUND: Endothelial nitric oxide synthase (eNOS) plays a major role in the response of anti-hypercholesterol statin drugs. Genetic polymorphisms in eNOS gene affect eNOS's activity and hence modulate statins response.

OBJECTIVES: This study investigated the influence of major functional eNOS gene polymorphisms (rs2070744, rs1799983 and rs61722009) on the lipid profile of diabetes mellitus type 2 (T2DM) Jordanian patients on atorvastatin treatment.

METHOD: One hundred and three T2DM patients, attending the diabetic clinic of Jordan University Hospital, were enrolled in this study. The T2DM patients were on 20 mg atorvastatin. The atorvastatin response was calculated through measuring the lipid profile before and after 3 months of atorvastatin treatment. The eNOS genotypes of the patients were analyzed using polymerase chain reaction followed by restriction fragment length polymorphism assay method.

RESULTS: There was no significant association between eNOS genetic polymorphisms and the response to atorvastatin (ANOVA, p value > 0.05). However, patients with eNOS rs1799983 4a/4a and rs61722009 G/G genotypes have a significant (p value < 0.05) lower total cholesterol (TC) and low density lipoprotein (LDL) baseline than patients carrying rs1799983 4b/4b and rs61722009 T/T genotypes. The eNOS rs1799983 and rs61722009 polymorphisms were in complete ($D'=1$) linkage disequilibrium.

CONCLUSION: Although we did not find an association between eNOS genetic polymorphisms and atorvastatin response, there was a significant association between rs1799983 and rs61722009 genotypes and TC and LDL baseline levels in Jordanian T2DM. These genetic variants affect the cholesterol level and may play a role in the susceptibility to cardiovascular diseases among T2DM in Jordan. Further intensive studies are needed to validate these findings.

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Biography

Yazun Jarrar an associate professor in molecular pharmacology. His goal is to develop pharmacogenomics testing for personalized therapy. And currently he is

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