

A novel CYP7A1 polymorphism is associated with the low-density lipoprotein cholesterol response to atorvastatin

Jing Chen ¹, Zhi-Ke Liu, ² Da-Fang Chen, ²

¹Peking University Six Hospital, China

²Peking University Health Science Center, China

Backgrounds and aims: Cholesterol 7 α hydroxylase encoding by gene CYP7A1 is the initial and rate-limiting step in the classical bile acid synthesis pathway. Atorvastatin can markedly upregulate the mRNAs of bile acids synthetic enzymes CYP7A1 in the liver to increase fecal bile acid excretion. We tempt to investigate the association between a novel CYP7A1 polymorphism rs8192875 and reduction of lipid levels response to atorvastatin in Chinese patients with coronary artery disease.

Methods: Of 169 patients with coronary artery disease were treated with atorvastatin for one month. Lipid profiles, including triglycerides(TGs), total cholesterol(TC), low-density lipoprotein cholesterol(LDL-C), and high-density lipoprotein cholesterol(HDL-C) were determined before and after treatment. Rs8192875 genotypes were assayed with the iPLEX assay in conjunction with the MassARRAY platform. We performed independent sample t test or Kruskal-Wallis test to evaluate the effects of SNP.

Results: After one month of atorvastatin therapy, the lipid levels decreased significantly. Compared with AG genotype, the GG genotype of rs8192875 achieved a greater reduction

of LDL-C level (0.694 ± 0.701 vs. 0.136 ± 0.401 mmol/l, $p=0.0056$; $24.090\pm 23.104\%$ vs. $2.182\pm 20.809\%$, $p=0.0031$); and a similar pattern of efficacy appears to TC (0.808 ± 0.791 vs. 0.302 ± 0.381 mmol/l, $p=0.0208$; $16.410\pm 15.370\%$ vs. $6.936\pm 9.711\%$, $p=0.0341$).The genotypes had no significant difference on TGs or HDL cholesterol-lowering response to atorvastatin.

Conclusions: A novel CYP7A1 exon variant rs8192875 is significantly associated with reducing LDL-C and TC level response to atorvastatin.

Speaker Biography

Jing Chen completed her Master's degree in Epidemiology and Hygenic statistics from School of Public Health, Peking University Health Science Center in 2016. She participated in a research study at Shi Mao Group Charity Hospital Research as an investigator. Her other research experiences include- National Free Preconception Health Examinaton Project (NFPHEP) during, The Family Based Cohort Study on The Common Non-communicable Chronic Diseases of the Population in The Rural Community of Northern China during and WHO project on "To promote the quality of Chinese maternal and child health annual report research".

e: 807706116@qq.com

 Notes: