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The Effect of Low, Moderate, and High Doses of Rosuvastatin on Lipoprotein(a) Levels in Hyperlipidemic Patients with Impaired Fasting Glucose: A Post-Hoc Analysis

Açlık Glikozu Bozulmuş Hiperlipidemik Hastalarda Düşük, Orta ve Yüksek Doz Rosuvastatinin Lipoprotein(a) Düzeyleri Üzerindeki Etkisi: Bir Post-Hoc Analizi

LETTER TO THE EDITOR
EDİTÖRE MEKTUP

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To the Editor,

We read with great interest the article by Güngör et al.,[1] where Lipoprotein(a) [Lp(a)] concentrations were found to be higher in statin users among patients with atherosclerotic cardiovascular disease (ASCVD). Interestingly, no difference were observed between high-intensity and moderate/low-intensity statin therapies.[1]

In this letter, we present a post-hoc analysis of a study conducted by our team, in which we examined the medical records of 72 hyperlipidemic cases with impaired fasting glucose (IFG) treated with rosuvastatin at does of 10 mg/day (R10), 20 mg/day (R20), and 40 mg/day (R40) for a median follow-up of 12 weeks.[2] In brief, rosuvastatin demonstrated favorable effects on the lipid profile and was associated with a significant dose-dependent increase in homeostasis model assessment of insulin resistance (HOMA-IR) values.[2]

According to our post-hoc analysis, a non-significant increase in Lp(a) levels of 2.3% (P = NS) was observed in the R10 group (n = 24), while significant increases of 9.5% (P = 0.047) and 21% (P = 0.017) were observed in the R20 (n = 25) and R40 (n = 23) groups, respectively. Regarding the changes in Lp(a) levels, no differences were noted between the R10 and R20 groups, while R40 resulted in a significantly greater increase in Lp(a) levels compared with R10 and R20 (P < 0.05). Furthermore, a significant negative correlation between changes in Lp(a) and low-density lipoprotein cholesterol (LDL-C) was observed in the R40 group (r = -0.5, P = 0.049).

Lp(a) is a pathogenetic factor in ASCVD. However, current evidence regarding the impact of statins on Lp(a) levels is controversial.[3,4] Tsimikas et al.[3] demonstrated a significant increase in Lp(a) levels among patients receiving statin therapy, whereas a meta-analysis of 39 studies reported a neutral effect.[4] Notably, in the JUPITER (Justification for the Use of Statins in Prevention: An Intervention Trial Evaluating Rosuvastatin) study, rosuvastatin at a dose of 20 mg/day did not alter Lp(a) levels compared to placebo in 7,746 white patients.[5] The authors concluded that Lp(a) represents an important factor of residual risk among white participants on rosuvastatin therapy.[5] Conversely, in the ASTRONOMER (Aortic Stenosis Progression Observation: Measuring Effects of Rosuvastatin) study, Lp(a) levels significantly increased by 20% after one year of treatment with rosuvastatin at a dose of 40 mg/day.[6]

The specific pathophysiological mechanisms through which statins influence Lp(a) levels are not yet fully understood. In the present post-hoc analysis, the increase in serum Lp(a) levels induced by high doses of rosuvastatin could be explained by the notable decrease in LDL-C concentrations. This explanation is supported by the significant negative correlation observed between LDL-C reduction and Lp(a) increase in the R40 group. Furthermore, a recent study suggested that statin-induced increases in apo(a) production may lead to elevated serum levels of Lp(a).[3]

This study has certain limitations. Its post-hoc design, which did not allow for a priori power analyses, along with the small patient sample size, may have influenced the results. However, our findings provide value by assessing the effects of standard regimens for dyslipidemia on Lp(a), an emerging risk factor for ASCVD. We conclude that rosuvastatin is associated with a dose-dependent increase in Lp(a) levels in hyperlipidemic patients with IFG.

Conflict of Interest: The authors have no conflicts of interest to declare.

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