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Letter to the Editor

Mortality benefit and reduced need for repeat revascularization with statin therapy among patients undergoing percutaneous coronary intervention

To the Editor:

In their article on statin therapy for patients with coronary artery disease, [1] Nakamura and colleagues discussed the effect of statin therapy on all-cause mortality, target lesion revascularization (TLR), and a composite endpoint of death, myocardial infarction, and readmission for heart failure among a prespecified subgroup of patients undergoing percutaneous coronary intervention (PCI). Their findings showed a discrepancy between mortality and cardiovascular events. Statin therapy decreased the risk of fatal events, but not TLR, or the composite triple endpoint. However, we think that these results need to be cautiously interpreted because a not ideal adjustment of confounding by indication together with insufficient power may have affected the validity and precision of their effect estimates.

Although the association between statin therapy and all-cause mortality among PCI-patients were statistically significant in this study, the reported magnitude of protection, in our opinion, may have been overestimated. Based on a cohort of PCI-patients with similar enrollment periods (February 2004 to May 2004; February 2006 to July 2006) from the US National Heart, Lung, and Blood Institute (NHLBI) Dynamic Registry, 83% of whom received at least one drug-eluting stent, we found a reduction of 42% in all-cause mortality [2] as compared with 73% in their study. It is noteworthy that up to today no clinical trials have confirmed the mortality benefit of statins among PCI-patients [3].

On the other hand, their evidence of lack of effect on TLR or the composite endpoint of cardiac events seems unreliable. Given the observed effect on mortality, it could not be explained only by false negatives due to small sample size. Based on the NHLBI Dynamic Registry, we found post-discharge statin therapy significantly reduced the need for repeat revascularization after adjusting for a wide array of covariates via propensity score models (hazard ratio: 0.74, 95% confidence interval: 0.56—1.00, $P = 0.05$) [2]. A meta-analysis of randomized clinical trials consistently showed a similar magnitude of reduction in repeat revascularization with statin therapy which was initiated after PCI procedures (risk ratio: 0.73, 95% confidence interval: 0.55—0.98, $P = 0.04$) [3].

As the authors pointed out in the Discussion, confounding cannot be completely controlled in an observational study due to unobserved covariates. Notably, several important prognostic factors in Tables 1 and 3 were not adjusted in their final multivariate model, although significant differences were observed between treatment groups. Small sample size may have limited the ability of a statistical model to accommodate covariates as needed. In this sense, adjustment through propensity score approach could possibly be an appropriate method to deal with their scenario [4].

References

[1] Nakamura M, Yamashita T, Yajima J, Oikawa Y, Ogasawara K, Sagara K, Koike A, Kirigaya H, Nagashima K, Otsuka T, Uejima T, Funada R, Matsuno S, Suzuki S, Sawada H, et al. Impact of early statin initiation on secondary prevention in Japanese patients with coronary artery disease. J Cardiol 2011;57:172—80.

[2] Zhang ZJ, Marroquin OC, Weissfeld JL, Stone RA, Mulukutla SR, Williams DO, Selzer F, Kip KE. Beneficial effects of statins after percutaneous coronary intervention. Eur J Cardiovasc Prev Rehabil 2009;16:445—50.

[3] Zhang ZJ, Cheng Q, Jiang GX, Marroquin OC. Statins in prevention of repeat revascularization after percutaneous coronary intervention—a meta-analysis of randomized clinical trials. Pharmacol Res 2010;61:316—20.

[4] Rosenbaum PR, Rubin DB. The central role of the propensity score in observational studies for causal effects. Biometrika 1983;70:41—55.

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Author's reply

We appreciate Dr Zhang's interest in our study [1] and the opportunity to discuss some issues. We also congratulate Dr Zhang and coworkers for their studies of the US National