

## Withdrawal of Statins in Patients With Acute Coronary Syndromes

To the Editor:

In a recent article,<sup>1</sup> we reported that pretreatment with statins before onset of symptoms in patients with acute coronary syndromes is associated with significantly improved clinical outcomes, and that discontinuation of statin therapy after onset of symptoms completely abrogates the beneficial effect of statin therapy. We have reevaluated our data and found inaccuracies in our analysis such that we can no longer support these original conclusions.

In reevaluating our data, we discovered that approximately one-third of the study population had missing data for troponin T at baseline and were excluded from the multivariate model we used to adjust for possible confounding factors. The exclusion of these patients had a large impact on the results. When we repeated the analysis using all patients irrespective of troponin T status, the effects trended in the same direction but were considerably more modest. Patients receiving statin therapy had a non-significantly lower rate of myocardial infarction and/or death at 30-day follow-up compared with patients not receiving statins (adjusted hazard ratio, 0.70 [95% confidence interval, 0.41 to 1.19];  $P=0.19$ ). Risk tended to be higher in patients who discontinued statin therapy relative than in those who continued to receive statins (adjusted hazard ratio, 2.22 [95% confidence interval, 0.90 to 5.49];  $P=0.08$ ), and there was little difference relative to patients who never received statins (adjusted hazard ratio, 1.50 [95% confidence interval, 0.70 to 3.19];  $P=0.30$ ).

We also recalculated the crude rates. For example, the crude rates of myocardial infarction or death at 30 days were 6.7% among patients who did not receive statins, 4.2% among patients who continued statins, and 9.4% among patients who discontinued statins. Although the rate was highest among patients who discontinued statin use, the comparisons among all 3 groups

( $P=0.10$ ) and between the continued and discontinued groups ( $P=0.060$ ) were not statistically significant. The corresponding rates of myocardial infarction/death at 7 days were 3.8%, 2.9%, and 8.2%, respectively ( $P=0.082$  among all 3 groups and  $P=0.031$  between the continued and discontinued groups).

Although the direction of the trend is maintained in this reanalysis, there is insufficient evidence to support the original conclusions. These data remain interesting, and we reiterate that unplanned post hoc analyses are useful in generating hypotheses that should be rigorously tested in randomized controlled trials before being accepted and adopted into clinical practice. We apologize for any confusion that may have arisen from the original publication.

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1. Heeschen C, Hamm CW, Laufs U, et al. Withdrawal of statins increases event rates in patients with acute coronary syndromes. *Circulation*. 2002; 105:1446–1452.