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The Reply

On behalf of the authors, I thank Dr. Egan for his thoughtful review and commentary on our work examining optimal blood pressure targets in treatment-resistant hypertension.[1] He specifically notes 2 issues regarding generalizability of our results to the larger treatment-resistant hypertension population. First, individuals with more severe treatment-resistant hypertension, that is, requiring ≥4 antihypertensive drugs or with severely elevated blood pressure, were excluded from both the Systolic Blood Pressure Intervention Trial (SPRINT) and the Action to Control Cardiovascular Risk in Diabetes (ACCORD) trial.[2,3] We previously noted this issue and encouraged caution in extrapolating our results to individuals with refractory hypertension.[1] Nevertheless, we saw no reason to believe that such individuals would derive less benefit from intensive treatment. Indeed, our results suggested that much of the benefit from intensive therapy is concentrated in the treatment-resistant hypertension population, who are known to be at highest risk.

Egan also points out that both trials had design elements intended to maximize differences in achieved blood pressure. Specifically, the treatment algorithms encouraged deintensification of therapy for the standard arm if their achieved systolic blood pressure was too low. He further suggests that this design choice may have led to somewhat suboptimal outcomes in the standard arm and an artifactual benefit in the intensive arm. This is a fair critique of both trials, but this issue is probably more pronounced in the nonresistant cohort, because they would be more likely to achieve blood pressures significantly below goal. Unfortunately, data about treatment decisions related to these blood pressure criteria were incomplete in the publicly available datasets. However, among participants randomly assigned to the standard arm, individuals with treatment-resistant hypertension at baseline were less likely to meet de-intensification criteria throughout follow-up in both trials (Figure[1]).

Finally, Egan suggests that current blood pressure goals in treatment-resistant hypertension, as espoused in the recent American Heart Association scientific statement,[4] are unlikely to achieve the level of blood pressure control we observed among the intensive group with treatment-resistant hypertension in SPRINT and ACCORD (64%, at 1 year). Although our data support more intensive blood pressure-lowering among those with treatment-resistant hypertension, I agree that, at the population level, the full benefit observed with intensive therapy in SPRINT and ACCORD is unlikely to be achieved in the community given current blood pressure goals. Targeting a lower blood pressure would allow more individuals to reach a blood pressure < 130/80 mm Hg, but likely at the expense of significant treatment burden, especially in those with treatment-resistant hypertension.

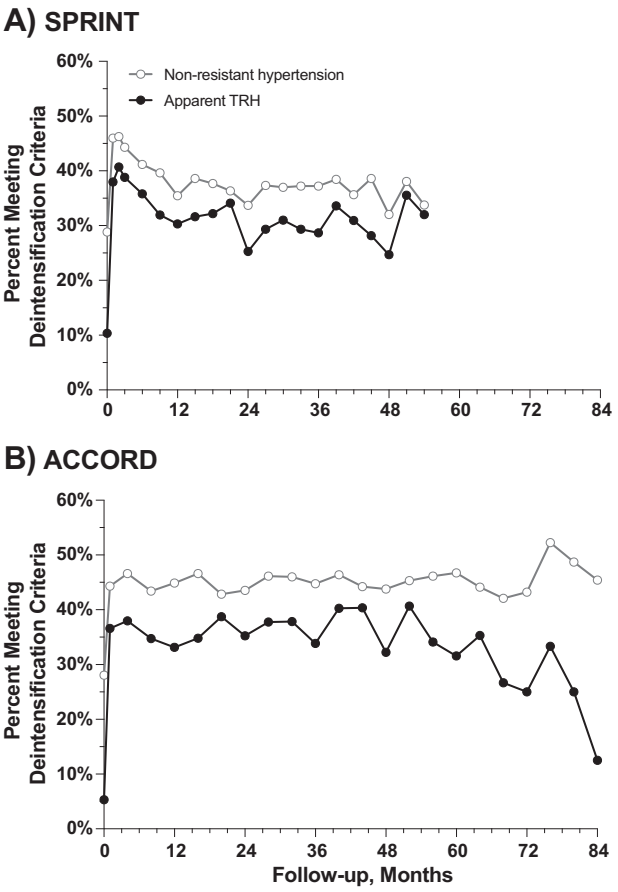

Figure Percentage of individuals meeting criteria for de-intensification, according to baseline resistant hypertension status, among those assigned to the standard systolic blood pressure target in the Systolic Blood Pressure Intervention Trial (SPRINT) and the Action to Control Cardiovascular Risk in Diabetes (ACCORD) trial. De-intensification criteria were a single visit with systolic blood pressure < 130 mm Hg, or 2 consecutive protocol-specified visits with systolic blood pressure < 135 mm Hg. Apparent treatment-resistant hypertension (TRH) or nonresistant hypertension were defined at baseline, as in our original paper.[1]

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