RESPONSE TO COMMENT ON BRESS ET AL.

Effect of Intensive Versus Standard Blood Pressure Treatment According to Baseline Prediabetes Status: A Post Hoc Analysis of a Randomized Trial. Diabetes Care 2017;40:1401–1408

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We thank Neves et al. (1) for their comments on our article (2). They agree with our findings that results from the Systolic Blood Pressure Intervention Trial (SPRINT) demonstrate that the beneficial effects of intensive systolic blood pressure control are consistent among those with prediabetes and normoglycemia. We found no attenuation of effect of intensive systolic blood pressure control at higher fasting serum glucose levels, including patients with fasting serum glucose levels approaching the diabetic range (i.e., >126 mg/dL) (2). Although this analysis was not a prespecified subgroup analysis in SPRINT, we determined the need for this particular analysis based on considerations external to the SPRINT data. Given the inconsistent results of the overall SPRINT and the Action to Control Cardiovascular Risk in Diabetes Blood Pressure (ACCORD-BP) trials, the question of whether the effect of intensive versus standard systolic blood pressure control was similar among those with fasting normoglycemia and patients with prediabetes and high cardiovascular disease risk became urgent.

We also agree that a better understanding of the association between prediabetes and cardiovascular disease events is needed, particularly among those at high risk for cardiovascular disease. Several meta-analyses of large prospective cohort studies demonstrate a positive and graded association between increasing fasting serum glucose as a continuous variable, beginning as low as 85 mg/dL, and cardiovascular disease events (3–5). Prediabetes as a categorical variable is also associated with an increased risk of cardiovascular disease events. A meta-analysis of 53 prospective cohort studies with 1,611,339 patients found that those with prediabetes (defined by impaired glucose tolerance or impaired fasting glucose according to American Diabetes Association or World Health Organization impaired fasting glucose criteria) had a statistically significant 13% higher risk of cardiovascular disease events over a median follow-up of 9.5 years compared with those with normoglycemia (6). Studies used in these meta-analyses included patients with a wide range of baseline cardiovascular disease risk, making it difficult to understand if the association of prediabetes and cardiovascular disease risk is heterogeneous across a range of baseline cardiovascular disease risk. Examining the association between prediabetes and cardiovascular disease risk in SPRINT was beyond the scope of our analysis, but we do appreciate the analysis by Neves et al. (1). We agree with their conclusions that prediabetes status may not increase cardiovascular risk among patients who are at high risk for cardiovascular disease events. Because prediabetes often coexists with other confounding cardiovascular disease risk factors, such as hypertension, metabolic syndrome, and obesity, it is clear that additional studies are needed that are designed to determine the impact of prediabetes on cardiovascular disease risk in such high-risk populations.

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