



RESPONSE TO COMMENT ON LACY ET AL.

## Long-term Glycemic Control and Dementia Risk in Type 1 Diabetes.

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We thank Medrano-De-Ávila et al. (1) for their interest in our study (2) on long-term glycemic control and dementia risk among older adults with type 1 diabetes.

In our study, the principal finding was that individuals with majority exposure to HbA<sub>1c</sub> 8–8.9% or HbA<sub>1c</sub> ≥9% had higher rates of dementia. A secondary finding was the suggestion that majority exposure to HbA<sub>1c</sub> <6% was potentially associated with a slightly (albeit statistically nonsignificant) increased risk of dementia. As Medrano-De-Ávila et al. point out, prior studies have identified an association between hypoglycemia and dementia in type 2 diabetes (3,4); the association between hypoglycemia and dementia in those with type 1 diabetes, however, remains unknown. It is possible that hypoglycemia is one of the mechanisms through which exposure to high and low levels of HbA<sub>1c</sub> may increase risk of dementia. Our models do adjust for severe hypoglycemia events that occurred prior to baseline but were unable to adjust for hypoglycemia (severe or otherwise) that occurred during follow-up. We agree that this is a limitation of our study and indicated this in the original article. However, the goal of the study was to delineate the pattern of long-term glycemic control and dementia; our next steps are to investigate why

these associations exist and, certainly, acute hyper- or hypoglycemia events could play an important role.

Medrano-De-Ávila et al. (1) also point out that our findings suggest that adults with type 1 diabetes are at risk for developing dementia at younger ages than the general population. We agree with this assessment of our findings. Among those who developed dementia, the average age at dementia diagnosis was 64.6 years, indicating a possible increased risk for young-onset dementia (5). Taken together with results from previous studies that have reported higher rates of dementia in people with type 1 diabetes than in the general population (6), these findings indicate that older adults with type 1 diabetes are a particularly high-risk group. Importantly, our study suggests that glycemic control may be a modifiable risk factor that can be targeted to reduce dementia risk in this growing population.

**Duality of Interest.** No potential conflicts of interest relevant to this article were reported.

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