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Perceived Cognitive Function Is Associated With Adherence to Diabetes Self-Management Behaviors Among Breast Cancer Survivors

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Introduction: In the United States, the annual incidence of breast cancer and comorbid type 2 diabetes mellitus (T2DM) in women is ~40,000. Both conditions are associated with cognitive decline, which adversely affects self-management behaviors (SMBs) including adherence to medication, dietary and exercise recommendations. Patients with breast cancer also self-report decreased cognitive ability. Such perceptions can result from objective

decline in cognitive function as well as factors such as anxiety and depression. Yet, the effect of perceived cognitive function on diabetes SMBs remains unclear. We evaluated the relationship between perceived cognitive function and adherence to SMBs in breast cancer survivors with T2DM.

Hypothesis: Greater adherence to diabetes SMBs will be associated with higher perceived cognitive function.

Methodology: We enrolled women ≥ 55 years with pre-existing T2DM who were diagnosed with Stage 0-IIIa breast cancer in the past 15 years, had completed adjuvant chemotherapy and/or prescribed hormonal therapy, and were taking ≥ 1 oral diabetes medication. We measured perceived cognitive function with the Functional Assessment of Cancer Therapy-Cognition (FACT-Cog, version 3) and diabetes SMBs adherence with the Summary of Diabetes Self Care Activities (SDSCA) questionnaire. Adherence to diabetes medications was assessed using an electronic monitoring bottlecap (eCAP). Data were dichotomized into adherent vs non-adherent. Wilcoxon rank-sum tests were used to compare cognition scores between groups.

Results: 239 patients (mean age: 66.5 years; 28% Black, 39% white, 6% Asian, 7% other, 20% unanswered) completed interviews. Cancer survivors who were non-adherent with their diabetes medication perceived themselves as having lower cognitive function (Total FACT-Cog median (interquartile range; IQR) 102 (36.7) vs. 115 (30), $p < 0.05$), with lower scores on the perceived cognitive ability and impact of cognitive impairments on quality of life (QOL) subscales (Cognitive-ability median (IQR) 20 (9) vs. 23 (7), $p < 0.001$; QOL median (IQR) 13 (6) vs 16 (3), $p < 0.05$). Similarly, those who reported healthy eating for < 5 days over the past week and < 5 days/week over the past month had lower cognitive self-perception scores (Total FACT-Cog median (IQR) 106 (37) vs. 114 (25), $p < 0.05$ and 106 (37) vs. 114 (26), $p < 0.001$ respectively), and significantly differed on the perceived cognitive impairment and comments from others subscales (Cognitive-impairment median (IQR) 55.1 (26) vs. 62 (17), $p < 0.01$ and 54.5 (25) vs. 62 (17), $p < 0.001$; Comments median (IQR) 16 (2) vs. 16 (1), $p < 0.05$ and 16 (2) vs. 16 (1), $p < 0.001$). Adherence to exercise and to blood glucose testing were not associated with differences in perceived cognitive function.

Conclusion: Among breast cancer survivors with T2DM, adherence to diet and medication was associated with greater self-perceptions of cognitive function. Future studies will test whether interventions to improve patients' perceptions of their cognitive abilities can influence self-care.

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