

BP, Gait Linked to Cognitive Deficits in Type 2

BY DIANA MAHONEY

FROM NEUROPSYCHOLOGY

High systolic blood pressure, gait-balance deficiencies, and low self-reported health scores are linked to cognitive deficits in older adults with type 2 diabetes, according to a recent report.

The three health-related covariates were associated with deficits in neu-

rocognitive speed, executive functioning, and episodic memory in diabetic vs. nondiabetic adults, based on cross-sectional data from an ongoing multicohort study comprising community-dwelling adults from Western Canada. Participants undergo cognitive, neuropsychological,

health, and physiologic assessment at 3-year intervals.

VITALS

Major Finding: Systolic blood pressure attenuated the type 2 diabetes–cognition relationship by 30%-50% for episodic memory, neurocognitive speed, and executive function.

Data Source: An analysis of 499 older Canadian adults, 41 with diabetes, drawn from the Victoria Longitudinal Study of human aging.

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The current analysis included 499 participants, aged 53-90 years, drawn from the study's third independent sample. Excluded from the study were individuals who

had been previously diagnosed with Alzheimer's disease or vascular dementia, those scoring less than 26 on the Mini-Mental Status Examination, and those with clusters of potential comorbid neurologic, cardiovascular, and psychiatric diseases (*Neuropsychology* 2010;24:547-62).

Type 2 diabetes was present in 41 participants, who were compared with the 458 participants without diabetes. No group differences were found for global cognition or visual or audio acuity, said C. Peggy McFall of the University of Alberta, Edmonton, and colleagues.

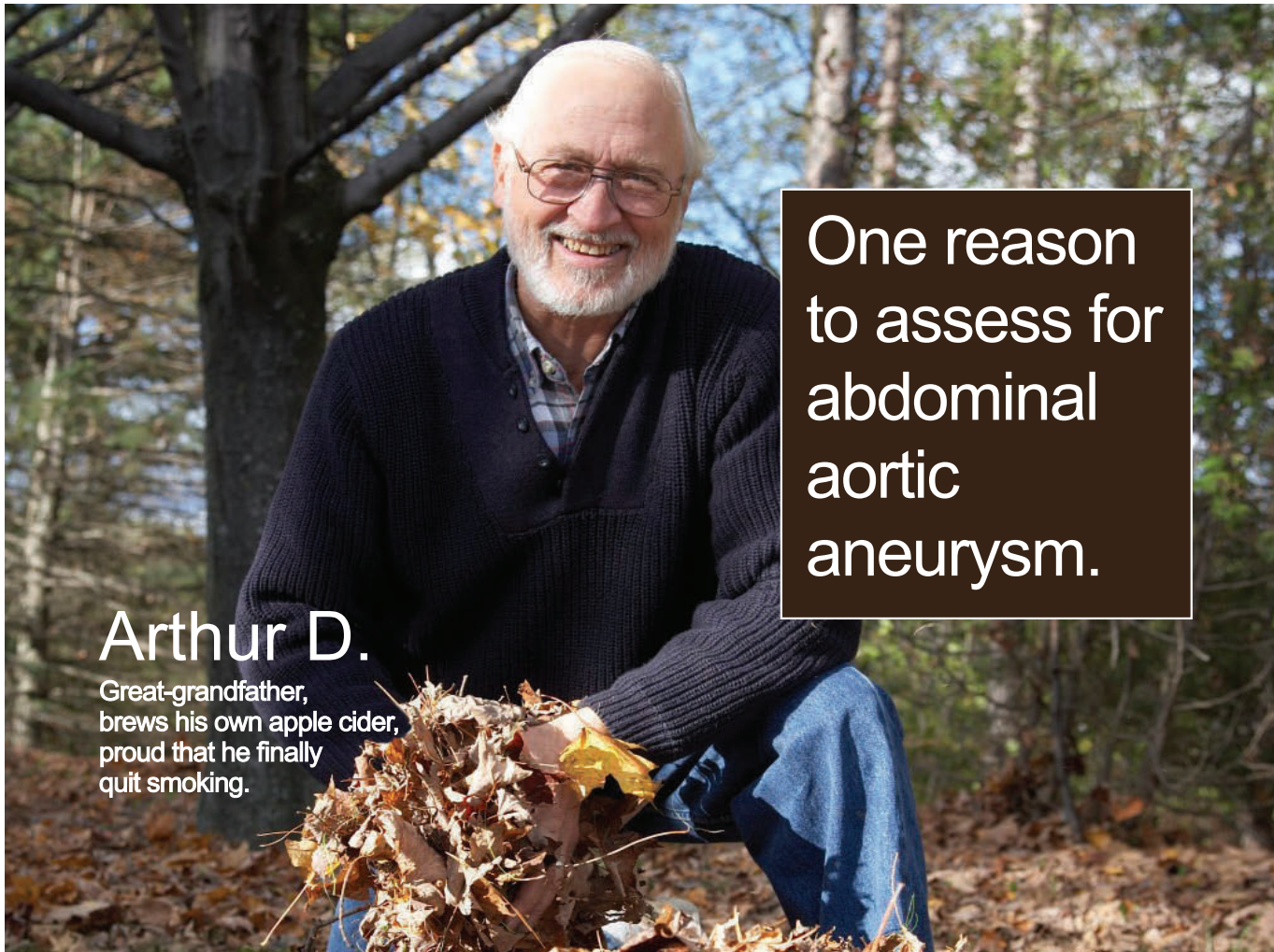
The investigators identified from the literature 13 health-related potential covariates and identified relationships between the covariates and type 2 diabetes. Six potential covariates – systolic blood pressure, body mass index, gait-balance, depression, negative affect, and subjective health, were found to be sensitive to type 2 diabetes associations with performance on seven cognitive measures. These measures were episodic memory, the Stroop Test, the Hayling Sentence Completion Test, the Color Trials Test 2, semantic speed, reaction time, and the Digit Symbol Substitution Test.

In the regression analyses, systolic blood pressure, gait-balance, and subjective health were found to mediate multiple cognitive outcomes. For example, systolic blood pressure attenuated the type 2 diabetes–cognition relationship by 30%-50% for episodic memory, neurocognitive speed, and executive function. As such, systolic blood pressure may be associated with type 2 diabetes related vascular disturbance.

The gait-balance composite mediated type 2 diabetes cognition relationships for all seven cognitive measures, with attenuation effects ranging from 32% to 62%, the authors reported. The substantial influence of this composite might reflect the impact of diabetes on specific neural mechanisms associated with gait and balance or, more broadly, it might affect the “multiple overlapping areas [of the brain] associated with gait-balance and cognition.”

The subjective health composite accounted for 35%-50% of performance on five different cognitive tests. Type 2 diabetes “may exacerbate levels of psychosocial stress, depression, and (lower) health self efficacy – all of which may negatively affect motivation for performance on cognitive tests,” the authors wrote.

The findings point to the need for “neuropsychological research on neural bases of [diabetes-related] cognitive decline, clinical research on intervention and treatment strategies, and larger-scale longitudinal epidemiological studies,” they concluded. ■



Arthur D.

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Reference: 1. Reardon RF, Cook T, Plummer D. Abdominal aortic aneurysm. In: Ma OJ, Mateer JR, Blaiwas M, eds. *Emergency Ultrasound*. 2nd ed. New York, NY: McGraw-Hill; 2008: 149-168. AortaScan, the AortaScan symbol, Verathon, and the Verathon Torch symbol are trademarks of Verathon Inc. © 2010 Verathon Inc. 1001FPN-Ad 0900-3355-00-86



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