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Associations of dietary intake of B vitamins and cognition in older adults from a low-income community in South Africa

Celeste A de Jager[1], **L Dye**[2], **J Cade**[2] and **J Harbron**[3]
[1]University of Cape Town, South Africa
[2]University of Leeds, United Kingdom
[3]University of Cape Town, South Africa

Background: Elevated concentrations of plasma homocysteine are associated with cognitive impairment and dementia. Homocysteine levels are raised when dietary intake of B vitamins (folic acid, B6 and B12) is low. The diet of low-income populations may be deficient in B vitamins as these are largely absent in staple, starchy foods. Fortified foods may provide B vitamins, but older people tend to have poor absorption. We aimed to look at the association of B vitamin intake with cognitive performance in a low-income community.

Methods: We assessed 60 Xhosa-speaking participants aged 60 years and over with the Community Screening Instrument for Dementia (CSID: isiXhosa version) the MMSE and verbal fluency. Blood samples were assayed for vitamins B12, B6, folate, homocysteine and other biomarkers. A food frequency questionnaire, adapted to the local diet, was completed by each participant.

Results: Over 85% of participants were overweight or obese. The median dietary intake of folate was 242.5 (196.7-316.4) mcg/d, much lower than the estimated average requirements for adults of 320mcg/d. The median dietary intakes were adequate for Vitamin B12 and Vitamin B6 at 5.95 (3.1-9.0) mcg/day and 2.2 (1.9-2.6) mg/day respectively. CSID scores were negatively correlated with folate intake (-0.33, p=0.015) and BMI (0.28, p=0.03). Trends were observed for correlations of serum B12 with MMSE (0.26, p=059) and verbal fluency (0.24, p=0.09).

Conclusions: Folate intake was inadequate for 75% of our participants. Dietary sources of folate and other micronutrients for this low-income region will be presented and implications for cognitive function will be discussed.

Biography

Celeste A de Jager, University of Cape Town (UCT) worked in the fields of neuropsychology and dementia research for 14 years at the University of Oxford, UK. She was the Principal Investigator in studies with Merck, plc to identify sensitive neuropsychological tests as outcomes for AD treatment trials; and for the Cognitive Archaeology collaborative study with Dr Peter Garrard from St George's University, London, on linguistic markers to predict dementia. She designed the cognitive and clinical assessment aspects of the VITACOG trial of B vitamins and omega-3 for those with MCI. Latter work involved novel brain imaging studies for predictive markers of Alzheimers disease. She obtained a British Academy award for community screening for cognitive impairment in India. She returned to UCT in South Africa in 2012 as a Senior Lecturer in Clinical Epidemiology and obtained a WUN award to examine nutrition and cognition in collaboration with Dementia SA, and researchers from Leeds and Sheffield University. She held the interim South African Research Chairs Initiative in Clinical Neurosciences from 2013-2014 and piloted dementia screening tools for Xhosa-speaking elders in order to conduct a large dementia prevalence study in a low-income community. She represented OPTIMA as a member of the European Alzheimer's Disease Consortium (EADC) and was an academic expert on the Nutrition and Mental Performance task force with the Institute of Life Sciences-Europe. She now leads the design of the assessment and recommendation system for stuward.com for family carers of people with dementia. She is an Editorial Board member for Journal of Alzheimers Disease and a reviewer for many medical journals.

celeste.dejager@uct.ac.za

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