Introduction

To date, there is abundant evidence for the relationship between nutrition with cognitive health. However, most evidence comes from population-based studies including participants of European ancestry rather than from clinical trials and with other ethnoracial groups (Babulal et al. 2018).

Studies have found that lower circulating levels of vitamins such as vitamin D and omega-3 fatty acids increase the risk of dementia. In addition, higher adherence to certain dietary patterns, such as the Mediterranean diet, Mediterranean- DASH Intervention for Neurodegenerative Delay (MIND) diet and ketogenic diet, have each shown some association with slower cognitive decline and a decreased risk of Alzheimer’s disease dementia (AD).

However, the limitation of only including participants of European ancestry in studies is that the evidence is not generalizable to other ethnoracial groups. As compared to individuals of European ancestry, other ethnoracial groups may have diet-related disparities which need public health attention (Babulal et al. 2018). Moreover, existing dietary intake assessment methods are mostly based on dietary patterns from individuals of European ancestry, introducing biased estimates when used for other ethnoracial groups (Babulal et al. 2018). Furthermore, limited evidence exists on diet-gene interactions, which may determine the impact of specific dietary interventions.

Promising findings from previous studies

Vitamin D
A recent meta-analysis (2018) including 10 cohort studies (n= 28,640) investigated the relationship between levels of vitamin D with dementia. The authors reported that a 10 nmol/L increase in 25-hydroxyvitamin D was associated with a 5% decreased risk of all-cause dementia (p<0.001) and a 7% decreased risk of AD (p= 0.001) (Chen et al. 2018).

Omega-3 Fatty Acids
A 2018 discovery and replication study including 11 cohort studies (n= 25,872) examined the relationship between levels of one of the omega-3 fatty acids, docosahexaenoic acid (DHA), with all-cause dementia and AD. Higher DHA was associated with a decreased risk of both all-cause dementia and AD (Odds Ratio (OR) 0.91, p= 1.9 × 10⁻⁴; OR 0.89, p= 1.5 × 10⁻³, respectively) (van der Lee et al. 2018).

MIND Diet
The MIND diet has recently been proposed as a dietary strategy to fight against cognitive decline. Morris et al. (2015a) first published a relationship between higher adherence to the MIND diet with slower cognitive decline (β=0.0092, p<0.0001) over 4.7 years of follow-up. In a separate study the authors reported associations between moderate and higher adherence to the MIND diet with lower AD risk (Hazard Ratio (HR) for moderate adherence 0.65 and HR for high adherence 0.47 v. low adherence, p for trend= 0.002) over 4.5 years of follow-up (Morris et al. 2015b). To date, other research groups, primarily based in the United States, have followed and results are promising.

Conclusion

In conclusion, epidemiological evidence on the effect of nutrition on cognitive health in ethnoracial groups is scarce and tailored dietary assessment methods for these groups are few.

At the Biggs Institute we will investigate participants of Hispanic and European ancestry to add to the body of evidence on the role of nutrition in health outcomes in both groups. Moreover, as an institute we will put our discoveries into practice in San Antonio/South Texas region.

References