Supplemental Material

Methods: Study Population and Participants

The DHS is a large multi-ethnic probability-based population sample of adult English- or Spanish-speaking Dallas County residents, with intentional oversampling of African Americans to comprise 50% of the study cohort[1]. The DHS was approved by the University of Texas Southwestern Medical Center Institutional Review Board, and each participant gave written informed consent to participate. Between September 2007 and December 2009, 3072 original DHS-1 subjects were asked to participate in a continuation of the original study termed the Dallas Heart Study-2. Family members and spouses of the original participants were able to participate in DHS-2. Of 2077 participants with brain imaging in DHS-2, 29 were excluded for identified pathology, imaging artifact or error precluding automated WMH analysis and 37 were excluded for self-reported stroke. This resulted in 2,011 DHS-2 subjects with quantification of WMH volumes on 3T brain imaging for this study.

In the original DHS 1 imaging cohort ethnicity composition was Black 50.1%, White 31.2%, Hispanic 16.7% and other 2.0%. Females accounted for 55.2%. In the final DHS2 brain imaging cohort for this study the ethnic composition was Black 45.7%, White 35.1%, Hispanic 17.1% and other 2.1%. Females accounted for 58.3%. The follow up sample therefore contained a slightly lower proportion of Blacks, a higher proportion of Whites and fairly similar proportion of Hispanic participants and a slightly higher proportion of females. The original DHS-1 study design was enriched for African Americans, however, so the study sample retains a proportion higher than that of Dallas County from which it was drawn. Previous work has also shown that the DHS-2 study sample is composed of individuals from DHS-1 with slightly lower risk factor severity[2], which may result in slightly underestimating the effect of comorbidities in the population and their impact on WMH.

Results

In secondary analysis, the age related differences in WMH volumes were also evaluated among groups based on presence or absence of each individual risk factor with adjustment for gender, ethnicity and intracranial volume. Among 973 with hypertension compared with 1038 without no significant age related differences in WMH were seen before ($p=0.60$) or after ($p=0.16$) age 50. Among 245 with diabetes compared with 1766 without no significant age related differences in WMH were seen before age 50 ($p=0.44$) but neared significance after age 50 ($p=0.053$). Among 1528 with abnormal BMI compared with 423 with normal BMI no significant age related differences in WMH were seen either before ($p=0.45$) or after ($p=0.49$) age 50.

References for Supplementary Material

1. Victor RG, Haley RW, Willett DL, Peshock RM, Vaeth PC, Leonard D, Basit M, Cooper RS, Iannacchione VG, Visscher WA, Staab JM, Hobbs HH. The dallas heart study: A population-based probability sample for the multidisciplinary study of ethnic differences in cardiovascular health. *Am J Cardiol*. 2004;93:1473-1480
2. King KS, Chen KX, Hulsey KM, McColl RW, Weiner MF, Nakonezny PA, Peshock RM. White matter hyperintensities: Use of aortic arch pulse wave velocity to predict volume independent of other cardiovascular risk factors. *Radiology*. 2013;267:709-717