The Association between Elevated Depressive Symptoms and Risk of Incident Ischemic Stroke: the Northern Manhattan Study (NOMAS)

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Objective:
To examine the association between depressive symptoms and risk of incident ischemic stroke in a race/ethnically diverse sample of older adults from Northern Manhattan.

Background:
Depression has been associated with increased risk of hypertension, cardiac morbidity and mortality, and stroke mortality. However, the impact on risk of incident stroke is underexplored, especially among Latinos and African Americans. We hypothesized that depressive symptoms would be associated with elevated incident ischemic stroke risk.

Design/Methods:
The Northern Manhattan Study MRI Sub-Study is a mostly Hispanic, prospective cohort study of older adults who were clinically stroke-free at baseline. Depressive symptoms were assessed using the Center of Epidemiological Studies–Depression Scale (CES-D) and a score ≥16 was considered elevated. We used Cox proportional hazards models to estimate hazard ratios and 95% confidence intervals (HR, 95%CI) of incident ischemic stroke after adjusting for age, sex, race/ethnicity, years of education, smoking status, moderate-to-heavy physical activity, alcohol consumption, diabetes and hypertension.

Results:
Data were available in 1104 participants (mean age=70±9 years, 61% women, 69% Hispanics). At MRI baseline, 198 participants (18%) had elevated depressive symptoms. Over 14 years of follow-up (median [IQR] f/u=11 [9;13] years), 101 participants had incident strokes, and 87 were ischemic strokes. Kaplan Meier estimates of cumulative incidence of stroke of any type were 14% (95% CI, 10–20%) and 13% (95% CI, 9%–18%), respectively. In adjusted models, participants with elevated depressive symptoms were at significant increased risk of ischemic stroke (HR=1.75, 95% CI 1.06–2.88). Every 5-point increase in CES-D score conferred a 12% greater risk of ischemic stroke (HR=1.12, 95% CI=1.01–1.25).

Conclusions:
In this mostly Hispanic sample, depressive symptoms were associated with increased risk of ischemic stroke. Better understanding of how depressive symptoms may affect cardiovascular risk factors and increase stroke risk are warranted to design appropriate primary prevention strategies.