71st AAN ANNUAL MEETING ABSTRACT

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Abstract Title: The Obesity Paradox Characterizes Outcome from Acute Ischemic Stroke: Evidence from 1033 Patients

Press Release Title: Being Overweight May Be Linked to Better Survival from Stroke

Objective: To delineate the relationship between body mass index (BMI) and 90 day outcomes in a large cohort of patients with acute ischemic stroke (AIS).

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Background: A survival advantage among individuals with higher body mass index has been observed for diverse acute illnesses, and termed the "obesity paradox." Prior stroke studies of the obesity paradox phenomenon have been underpowered and yielded mixed results.

Design/Methods: We analyzed all AIS patients enrolled in the multicenter NIH FAST-MAG acute stroke trial. Outcomes at 3 months analyzed were: (1) death; (2) disability or death (modified Rankin Scale, mRS 2-6); and (3) low stroke-related quality of life (Stroke Impact Scale, SIS <70). Relations with BMI were analyzed univariately and in multivariate models adjusting for 12 additional prognostic variables.

Results: Among 1,033 AIS patients, age was 71y (±13), 45.1% female, NIHSS 10.6 (±8.3), and BMI 27.5 (±5.6). Risk of death declined linearly with higher BMI (for BMI as continuous variable: unadjusted p=0.02, adjusted p=0.004), Odds ratios (adjusted) for mortality declined across the BMI categories of underweight, normal, overweight, obese, and severely obese: 1.67 (0.57-4.88), 0.85 (0.53-1.36), 0.54 (0.29-1.04), and 0.38 (0.16-0.88), Risk of disability had a U-shaped relation to BMI (quadratic p=0.02). Odds ratios for disability or death for underweight, normal, overweight, obese, and severely obese declined through the first 4 categories: 1.19, 1.00, 0.78, 0.72, 0,96. This relation was attenuated after adjustment for other prognostic factors (p=0.27). Similar, but nonsignificant, trends were seen for low stroke-related quality of life.

Conclusions: Outcome from acute ischemic stroke is characterized by an obesity paradox: elevated BMI is associated with reduced 3-month mortality over all, and reduced disability over most, weight ranges. Potential mechanisms including nutritional reserve aiding survival during prolonged illness and greater frequency of atherosclerotic than thromboembolic infarcts in individuals with higher body mass.