Effect of duration and age at exposure to the Stroke Belt on incident stroke in adulthood.

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Abstract

OBJECTIVE: To assess whether there are differences in the strength of association with incident stroke for specific periods of life in the Stroke Belt (SB).

METHODS: The risk of stroke was studied in 24,544 black and white stroke-free participants, aged 45+, in the Reasons for Geographic and Racial Differences in Stroke study, a national population-based cohort enrolled 2003-2007. Incident stroke was defined as first occurrence of stroke over an average 5.8 years of follow-up. Residential histories (city/state) were obtained by questionnaire. SB exposure was quantified by combinations of SB birthplace and current residence and proportion of years in SB during discrete age categories (0-12, 13-18, 19-30, 31-45, last 20 years) and entire life. Proportional hazards models were used to establish association of incident stroke with indices of exposure to SB, adjusted for demographic, socioeconomic (SES), and stroke risk factors.

RESULTS: In the demographic and SES models, risk of stroke was significantly associated with proportion of life in the SB and with all other exposure periods except birth, ages 31-45, and current residence. The strongest association was for the proportion of the entire life in SB. After adjustment for risk factors, the risk of stroke remained significantly associated only with proportion of residence in SB in adolescence.
(hazard ratio 1.17, 95% confidence interval 1.00-1.37).

**CONCLUSIONS:** Childhood emerged as the most important period of vulnerability to SB residence as a predictor of future stroke. Improvement in childhood health circumstances should be considered as part of long-term health improvement strategies in the SB.

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