Characteristics of Small Areas with a Higher Stroke Mortality

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Introduction: The burden of stroke mortality has been described as more frequent among people living in more deprived neighborhoods. We described previously in the city of Sao Paulo that the risk of stroke death doubles in the poorest area when compared to the wealthiest one. Spatial distribution of cerebrovascular disease has been verified in several countries such as the “stroke belt” in the United States. The confirmation of a cluster pattern of stroke mortality in small areas could be a useful tool for planning health facilities (physical rehabilitation units) and programs (cardiovascular secondary prevention) to mitigate the impact of cerebrovascular diseases at community level. Hypothesis: to identify cluster areas of low and high risk for stroke mortality in the West side of the city of Sao Paulo that is characterized by a wider gap of income and education level among small areas (census tracts). Methods: The West side of the city encompasses six districts with 489 census tracts and 422,000 inhabitants in 2006. During 2004-06, 645 stroke deaths were recognized by the department of health among non-institutionalized residents of these districts. We were able to confirm the address of 620 cases (96%) that were geocoded using a Geographic Information System (Geomedia version 6.0). Mortality rates were adjusted for age and gender. High and low clusters of stroke mortality rates were identified applying a discrete Poisson model (SatScan version 8.0). We categorized high and low clusters for 50% of the population. Data about the head of the family was such as income (minimum wage) and school-years were considered as socioeconomic variables. Both data were obtained directly from the 2000 National census. Results: Cluster analysis identified 193 census areas with high stroke mortality (p<0.001), 182.8 expected cases, 1.36 ratio of cases/expected and relative risk of 1.59; and 62 census areas with low stroke mortality (p=0.001), 116.5 expected cases, 0.59 ratio of cases/expected and relative risk of 0.54. Among 234 census areas 303 cases of stroke occurred with no statistically significant spatial distribution. The table shows characteristics of high and low clusters areas according to stroke mortality age-sex adjusted rates and the proportion of inhabitants with socioeconomic characteristics. Conclusion: the spatial analyses showed a high cluster area characterized by a great number of census areas with low income and less formal education.