Reviewer's report

Title: Regional Variation in Hospitalization for Stroke among Asians/Pacific Islanders in the United States: a Nationwide Retrospective Cohort Study

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Reviewer: Eyal Shahar

Reviewer’s report:

The authors have estimated the rates of hospitalized stroke, by subtype, among Asian/Pacific Islanders who reside in the U.S. and compared their estimates to those for non-Hispanic Whites overall and by region. In addition, they compared in-hospital mortality. The data for this manuscript were obtained from the Nationwide Inpatient Sample of the 1997 Healthcare Cost Utilization Project (counts of stroke) and on Census Bureau data (population denominator). Further details on the matching of these two data sources would be helpful, especially since sampling weights have played a major role.

Comments:

1. The authors explain their definition of “incidence” (“we report the incidence of first and recurrent stroke leading to hospitalization”), but their definition deviates from common epidemiological jargon and will confuse most readers. I suggest they delete all reference to “incidence”.

2. Of 2,159 stroke hospitalizations of Asian/Pacific Islanders, 1,697 have taken place in the West. The numbers in the other three regions are disproportionately small (52, 186, 224) and are even smaller when stratified into subtypes (Table 2). It is a little problematic to establish the inference on such small numbers, especially when regional heterogeneity is highlighted. Of note, the data show no rate difference between Asian/Pacific Islanders and Whites for the largest count (ischemic stroke; West). Could some of the striking differences be due to small counts and unstable rates? A table of stroke counts cross classified by race, region, and stroke type would have helped the reader to put some of the results in statistical perspective.

3. I don’t think that the list of ICD codes for ischemic stroke is entitled to the term “validated”. Most epidemiological studies (surveillance and cohort) have found that ICD codes alone do not agree with other (tedious) methods of stroke validation and classification.

Table 1:

The authors might wish to explain the rationale of Table 1. How does this table (marginal associations) serve the primary goal of this manuscript? Please note that standard deviations do not add useful information about skewed distributions and should be replaced by percentiles. Also, since Asian/Pacific Islanders were younger, we expect a younger age at death.

Table 2:

The authors describe the method by which they calculated unadjusted rates, but only age-adjusted rates are shown in the table. It would have been helpful to read a detailed description of the method by which Table 2 was created. For example, how did the authors calculate age-adjusted rate ratios and 95% CI, while taking into account the sampling weights? Also, how comparable are the rates for Whites to those reported by other studies?
Table 3:

It is unclear why African-Americans were included in case-fatality analysis and not in other tables. That change of focus might confuse the readers. If the manuscript is expanded to include another race group, then comparable data should be provided in Tables 1 and 2.

The Methods say: “In multivariable analyses, we adjusted for patient characteristics such as age, sex, co-morbidity score and median income for patient’s zip code. Co-morbidity scores were developed using a database version of the Charlson comorbidity index and represent a summary of major secondary diagnoses weighted by severity”. However, co-morbidity score is not mentioned in the footnote to Table 3.

Since the distribution of length of stay seems to differ by race (Table 1), I was wondering how valid is a comparison of in-hospital mortality.

In both Table 2 and Table 3, it would be helpful to see a row for “all strokes”.

The authors might wish to explain their choice of covariates for adjustment. In particular, what does “unadjusted race effect” mean, and what does “adjusted race effect” mean? Please note that contemporary epidemiological theory does not support the notion of “explaining away” effects by adjustment. In fact, it was shown that such adjustment might create bias.

General comment for Editors and Authors: In general, I do not consider any comment of reviewers to be compulsory. The reason is simple. The authors have the right to disagree with the reviewer (who may be wrong) and the Editor has the duty to be the judge.

What next?: Reject because scientifically unsound

Level of interest: An article of limited interest

Quality of written English: Acceptable

Statistical review: No

Declaration of competing interests:

I declare that I have no competing interests