Reviewer’s report

Title: Incidence of first ever stroke during Hajj ceremony

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Reviewer: norberto l cabral

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Dear authors

I read with interest the manuscript from Azarpazhooh MR et al. The idea of measure stroke incidence in religious and regular event is very creative. I would like to point out some concerns.

Major concerns: The authors ascertained all first ever strokes occurred during Hajj ceremony at the end of 2007 and beginning of 2008 (47 days). They compared, in the same time, the incidence among Iranian pilgrims (17/92,974) in the Mecca and Medina with a database in the Iranian city of Mashhad (12/334,348). However, they didn’t adjust their crude rates to standardized population. In the table 2, they found a crude rate of 18/100,000 (10-26) in Hajj sample and 12/100,000 (5-19) in Mashhad city. I adjusted to SEGI world population (2000), and the incidence was 84/100,000 (49-135) in Hajj and 153/100,000 (109-208) in Mashhad. As they showed in the figure 1, age distribution was very different between the samples, which explains the higher incidence in MSIS. Even though those crude rates were statistically different in some age strata but the study has interest for Muslim countries. So, the external validity of this study is narrow.

Minor concerns:

Abstract: results, line 11: ...than the Mashhad population; the same in line 17. Enhance that ascertainment in Hajj ceremony was retrospectively done.

Introduction: Objective 1: ... of first ever stroke;

Methods: How many people had in each caravan? Could you specify whether the GP asked specifically if the patient had already had a previous stroke? ; Line 20: Iranians pilgrims. Please, could you clarify if MSIS data was done prospectively or not? Is it a population-based study? What means a CT only case?

Results: How many first ever strokes were ascertained by GPs in Hajj ceremony? In general, CVT is not included in stroke epidemiological studies. Please, exclude these two cases. How many “possible” and “CT only” cases were excluded?

Discussion: The results Hajj pilgrims need to be compared with MSIS data and not with general population.
Norberto Cabral

**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

No competing interests