Reviewer's report

Title: Stroke in urban and rural populations in north-east Bulgaria: incidence and case fatality findings from a 'hot pursuit' study

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Reviewer: Dr Charles Wolfe

Level of interest: not specified

Advice on publication: Other (see below)

The estimation of the impact of acute stroke, and projected longer term outcome is highly relevant in Eastern Europe and comparisons with other countries always puts the issue into perspective.

1. There is no novel methodology in this report on incidence rates in rural and urban Bulgaria and the main deficiency that makes the estimates questionable in 2002 is the very low CT scan rate that means that the diagnosis and subtype can not be validated. However as a ball park estimate of rates in Bulgaria it is an important beginning.

2. The authors keep referring to Sudlow and Warlow standards. Of course this is a recognised paper but it is only one view of how registers should be conducted. It is not evidence based and there are new statistical techniques to assess completeness such as capture recapture. It is an old paper and represents studies conducted a long time ago with all the issues of relevance emerging when comparisons are made with contemporary data. The text could be toned down in this regard as although the researchers fulfil some of the criteria they have very low CT scan rates and small populations that are perhaps the more relevant indicators.

3. Abstract-Can the authors be clearer on the first ever stroke aspect. Usually overall rats are quoted per 1,000/100,000 and then sub populations. Of importance presumably are the rates in the younger populations and very old. World standardisation may be relevant for comparison but the actual rate and European adjusted rates are more relevant.

4. The literature on stroke incidence is very out of date and there have been many European studies quoted in the last 5 years that should be included rather than the old ones from Monica and the Sudlow paper. E.g. Kolominsky et al, Wolfe et al, Giroud et al.

5. P5 para 1 is not clear and the reference needs to be in the reference list.

6. Methods-can first in a lifetime be clarified. It is really unclear why the authors report anything other than first in a lifetime strokes. The overall rates and rates in sub age groups need to be clearly presented. Why were strokes under 35 excluded?

7. P7 para 3. The use of the investigations and GCS seem not to be reported in the paper so what was their purpose?
8. Results- Again the overall rates and rates by sub age group for first ever strokes is all that should be reported to save confusion for the reader. Rates in urban and rural areas also need to be statistically checked. In table 2 the rates are actually not significantly different for males, the CIs overlapping.

9. Because of the low CT rates the report of subtypes is biased and should not be reported.

10. The comparison with hot pursuit studies-the term really only means accurate register and is nothing special. This study fails on 2 important aspects-CT scan rates and small populations so the tone of the success of this study needs to be discussed more openly. The comparison is historical and the researchers need to compare with European and other studies in the last 5-10 years.

11. Discussion P12 Para 3 the issue of the cases registered by verbal autopsy. Are the researchers happy that WHO criteria have been met either from history or examination. If not these cases need to be removed from the analysis.

12. Table 1 is not particularly useful as all the paper is about is the first ever strokes.

13. Table 3 is biased and should be removed

14. Figure 2 needs further explanation and legends could be clearer.

I have no conflicts of interest

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Competing interests:

None declared.