Reviewer's report

Title: Trends in aortic aneurysm- and dissection-related mortality in the state of Sao Paulo, Brazil, 1985-2009: multiple-cause-of-death analysis

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Reviewer: Janet Powell

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The analysis of this complex data set remains muddled. There are great opportunities, but these have not been fully exploited.

1* In comparison to mortality data from other countries, the mortality from dissection (versus aneurysm) is very high. This requires both analysis and comment eg is hypertension poorly treated in Brazil?

2* Although it is acceptable to present combined mortality from aneurysm and dissection, it is much better if the two are considered separately since these 2 disorders have rather different risk factors. Also aneurysm repair has been available for many years but endovascular intervention for dissection is a much more recent phenomenon.

3* Combining data for underlying causes of mortality and secondary causes is unacceptable. This is because secondary causes reported depend on the level of case ascertainment. For some disorders eg abdominal aortic aneurysm, case ascertainment has increased rapidly and ultrasonography is used to detect even small aneurysms that do not warrant repair. Therefore, the potential inclusion of abdominal aortic aneurysm as a co-existent disorder can only be interpreted in the context of both case ascertainment, volume and outcome of elective aneurysm repairs and clinical practice guidelines in Brazil. The authors should focus only on the primary underlying cause of death. There are sufficient interesting data to allow this.

4* It would be helpful to show the seasonal changes in mortality as a proportion of total mortality, to identify whether there are strong underlying seasonal effects on total mortality in Brazil.

Level of interest: An article whose findings are important to those with closely related research interests

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

Statistical review: No, the manuscript does not need to be seen by a statistician.