Reviewer's report

Title: Clinical predictors of lacunar syndrome not due to lacunar infarction

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Reviewer: Simona Sacco

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Clinical predictors of lacunar syndrome not due to lacunar infarction

The study was aimed to describe the clinical characteristics of patients with lacunar syndrome not due to lacunar infarct and to identify clinical predictors of a lacunar syndrome unrelated to a lacunar stroke. Authors performed a retrospective analysis of a cohort of patients whose date were collected over 8 years of observation and identified 146 patients with lacunar syndrome not caused by a lacunar stroke and 733 patients with a lacunar infarction.

Major Compulsory Revisions

1. Authors should report more clearly their criteria to establish that a lacunar syndrome was not caused by a lacunar stroke. A clinical lacunar syndrome cannot be caused by a lacunar stroke but by a different type of lesion such as an hemorrhage of an area of ischemia >20 mm; in this case in my opinion it appears obvious how authors managed the case. However, it is not clear at the same level, how authors managed cases of patients with a lacunar syndrome and a small deep ischemia <20 mm presenting also with other associated conditions such as atrial fibrillation or carotid stenosis. If this was the case, it is very difficult to establish if the lesion was caused by a small-vessel disease or by the concurrent condition.

2. It is not correct to insert among the possible predictors in the multivariate analysis factors (e.g. atrial fibrillation) that are used a priori to assess in which group the patient had to be allocated.

Minor Essential Revisions

3. The following sentence in the Introduction should be made more clear “On the other hand, whether or not the lacunar hypothesis is fulfilled in the different subtypes of lacunar syndromes (classic or atypical) has not been clearly established”.

4. Which were the clinical features of cases classified as “atypical lacunar syndromes”?

5. Authors should define what they considered “sudden onset” and also which were the characteristics of the non-sudden onset.

6. In the Results in some cases Authors provide only percentages and in other cases only numbers. I suggest to make it uniform.

7. Authors should add that at the multivariate analysis also younger age was
associated with a lacunar syndrome not caused by a lacunar stroke.

8. I suggest to report P<0.0001 rather than P=0.000.

9. In the Discussion, the following sentence is not supported by Authors’ results “In relation to aetiological stroke subtypes, lacunar syndrome not due to lacunar infarct was found in 10.5% of cases of spontaneous subdural haematoma and in 9.1% of primary intracerebral haemorrhage”. If it refers to data of the literature, one or more references should be added. The same should be considered also for the following sentence “Likewise, lacunar syndromes not due to lacunar infarcts were documented in 7% of atherothrombotic infarction, 5% of cardioembolic infarction, 3.4% of infarcts of unknown cause and 1.8% of infarcts of unusual aetiology, which is in agreement with other studies showing that lacunar syndromes may be caused by extensive non-lacunar infarctions, mainly of subcortical topography and less frequently cortical infarcts [3,13].”

10. The following sentence in the Discussion reflects data that were not reported in the Results “In our study, sensorimotor stroke may not be caused by a lacunar infarct in 38% of cases”.

11. Weakness of the study should be reported.

12. Reference number 17 should be completed.

Discretionary Revisions

13. To ameliorate the value of the paper, in the Introduction authors should better underscore the importance of their study.

14. Authors may provide some further details according to the examinations that were performed to establish the cause of the stroke.

15. Why the hospital stay was so long (18 days)?

16. In the Discussion, Authors reported that previous series were not “homogenous”; it is not clear what does this exactly mean.

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

Declaration of competing interests: I declare that I have no competing interests