Reviewer's report

Title: Right-to-left shunt and subclinical ischemic brain lesions in Chinese migraineurs: A multicentre MRI study

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Reviewer: Giuliano Sette

Reviewer's report:

The authors of the present multicenter study have investigated the association between the cardiac right-to-left shunt (RLS) and subclinical ischemic brain lesions in patients affected by migraine. The problem has been approached from different angles and the results are in agreement with what was previously published.

however, some points should be clarified

Background

page 3 rows 15-16: ...Several studies have reported that SBI and WMHs are more prevalent in subjects with migraine[1,3,6], especially migraine with aura (MA)[2, 7]....

2) Global cerebral blood flow, blood volume…. is a CBF and CBV PET study, not data on SBI or WMHs are reported.

7) Lesion patterns in patients with cryptogenic stroke….. patients considered in this study are not migraineurs

page 3 rows 20-21: ...Several case-control analyses have indicated that RLS is more common in patients who suffer MA than normals [10,11]....

10) Comparison of two contrast agents for right-to-left shunt diagnosis with contrast-enhanced transcranial Doppler

11) Detection of right-to-left shunt with ultrasound contrast agent and transcranial Doppler sonography. Both paper focused on diagnostic technique

I suppose the authors should review the references list
Methods:

Page 5 rows 20-21, page 6 rows 1-2: The patients were aged between 18 and 70 years, and were diagnosed with migraine through a questionnaire based on the International Classification of Headache Disorders, 3rd edition beta version (ICHD-3beta; Headache Classification Committee of the International Headache Society, 2013).

Can the authors clarify this crucial point? i.e.:

Is it a self-administered questionnaire?

Is it a validate questionnaire?

can the questionnaire be added as a table or figure?

Have patients underwent neurological examination?

personally I would have some difficulty in discriminating migraine with aura (MA) and migraine without aura (MwA) by means of a questionnaire.

Results:

Although some studies do not confirm the association between RLS and migraine (1), we can consider that about 57% of patients with MA had RLS compared with 19% of control subjects, while the prevalence of RLS in patients with migraine without aura (MwA) did not differ from the general population (2). In the proposed study the patients (MA and MwA) with RLS are about the 67%.

Can the authors comment about this high prevalence of RLS in their overall migraineurs group?

Page 9 row 17: Curtain RLS and SBI in migraineurs:

does the curtains group include patients with permanent RLS or both (permanent + latent)? It is not clearly specified on the text.


Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable
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