Reviewer's report

Title: Patients with migraine with aura have an increased flow mediated dilation

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Reviewer: Paola Sarchielli

Reviewer's report:

In the present study the authors investigated the Endothelial Derived Nitric Oxide (EDNO) mediated arterial dilation (brachial artery) in migraine patients and controls.

They found significantly higher values of normalised FMD in MwA patients compared to controls and MwoA patients.

They hypothesised that migraineurs have an excessive arterial response to hyperemia which could express an increased sensitivity to EDNO.

I have some concerns which need to be addressed.

Major Compulsory Revisions

Methods

1. Sensitivity and specificity of the measurement of forearm blood flow and changes induces by flow mediated dilation should be reported. Are there validation studies on the method which have been already published?

2. Differences in methodological approach from similar studies should be discussed in discussion section.

Statistical analysis

3. According to the method chosen, the distribution of FMD values is not normal. Why the authors did not chose the non-parametric median test considering that they reported in results section that FMD was over the median value (19 %) in 23.1 % of controls, 45.5 % of MwoA patients and 90.0 % of MwA patients?

Discussion

4. How the authors do explain the quantitative difference in flow mediated dilation between MwA and MwoA patients? In changes in FMD is expressive of an hypersensitivity to EDNO, why this increased sensitivity is greater in MwA patients? These latter often have a painful phase less severe than that occurring during the ictal phase of patients with MwoA.

5. Could this greater increase be related to the aura phase? Is there experimental evidence for this also using other methodological approaches?

6. The authors asserted that excessive response to hyperemia could reflect similar changes in the cerebral circulation. Is there evidence for this using
transcranial Doppler or echodoppler of carotid and vertebro-basilar vessels?

7. Methodological differences should be mentioned between this study and other(s) using similar methodology.

Results

8. They are clearly reported. Median test analysis results are lacking.

Discretionary Revisions

Subject section

9. The time from the last and next attack should be specified.

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

Quality of written English: Acceptable

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

Declaration of competing interests:

I declare that I have no competing interests