

Peer Review File

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Reviewer A

This study proposes a method to identify patients with severe carotid stenosis (sCAS), distinct from the conventional %DR classification, by focusing on the presence of ophthalmic artery flow direction and internal carotid artery bruit as indicators for revascularization. The potential impact of this research on treatment selection for patients with a high risk of stroke due to sCAS makes it highly intriguing not only to readers but also to clinicians and patients.

Moreover, the novel perspective of differentiating between ICA pressure and flow is quite interesting.

However, I consider there are some points that need improvement in this study.

Firstly, there seems to be information bias. Specifically, it would be crucial to indicate whether OAr measurements were performed without knowledge of symptom occurrence, in other words, whether the carotid echo and clinical examination for bruit were conducted in a blinded manner.

AUTHOR'S RESPONSE

Thank you for this question. The measured parameters were verified without reference to the clinical symptoms. The clinical symptom variable was extracted by a word search of the clinical report, this extraction was performed after finalizing the measurements for tabulation. The following paragraphs were added to the manuscript to clarify the measurement method.

CHANGES IN TEXT

“Clinical examinations in both laboratories were performed by sonographers holding the Registered Vascular Technologist (RVT) credential issued by the American Registry of Diagnostic Sonographers (ARDMS). Each sonographer reviewed the clinical indications for the examination before performing the examination. The hypothesis tested here was developed after the chart review data were assembled for analysis so the sonographer’s report was not influenced by the hypothesis.

“

CHANGES IN TEXT

“Without referring to the clinical presentation during chart review, each OAr measurement was verified by AEM and each PSV measurement was verified by KWB and each ICA spectral waveform was examined for evidence of bruit by KWB.

“

Furthermore, generally, exploring the most rapid section in carotid echo requires a high

level of technical proficiency (especially for PSV > 400 cm/s, where errors may be more frequent). Has this technical concern been addressed adequately?

AUTHOR'S RESPONSE

The sonographers in the HMC Vascular Laboratory are supervised by Professor R. Eugene Zierler, MD RVPI who has served on the board of the ARDMS. The text was not altered to respond to this point as vascular sonographers commonly measure PSV>400 cm/s. The DEGUM reference (Arning-2010) mentions 400 cm/s as a threshold criterion. In the "futile" reference (Beach-2012) covering 19 publications including PSV measurements from 2996 ICAs. 15% of the published PSV measurements are > 400 cm/s.

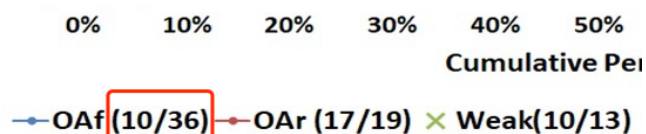
Reviewer B

1. Figures

- (1) Please check any description should be added to indicate what yellow and pink color represent in Figure 1.

DONE

- (2) Figure 3: please check whether the data below should be (11/36), consistent with the main text.



THANK YOU FOR CHECKING; THE CASE WITH WEAKNESS JUST ABOVE 70% HAS A PSV OF 393 cm/s, the next value down is 330 cm/s I have revised the threshold for this to 350 cm/s FRO FIGURE 3 AND FOR FIGURE 8

- (3) We found you cited some reference in Figure 1, 5, 7 and 8. Please confirm again if all these figures are original or not.

Figure 1 is an original drawing with the percentages and flow rates based on published numbers in these references; Figure 5 is an original drawing showing some values from the cited publications; Figure 7 has two original drawings based on data published in the cited references; Figure 8 is an original figure using data from the cited reference.

- (4) There are two legends for Figure 8, please check and revise.

CORRECTED

2. Reference

- (1) *Ref 9 & 22, 12 & 32, 13 & 33* are duplicated, please check and revise. THANK YOU FOR POINTING THIS OUT. ALL OF THE DUPLICATED REFERENCES HAVE BEEN REMOVED AND THE REFERENCE NUMBERING HAS BEEN REVISED.

(2) Please check the author name mentioned in the following sentence, which is inconsistent with the corresponding reference. *Although his formal name is William Gee, he was known by everyone as Bill Gee.*

- Nearly a decade later, **Bill Gee** reported on the pressure in the OA in cases of sCAS [26, 27].
- 26. Gee **W.**, Carotid physiology with ocular pneumoplethysmography., Stroke. 1982 Sep-Oct;13(5):666-73. doi: 10.1161/01.str.13.5.666., PMID: 7123601.
- 27. Gee **W.**, Ocular pneumoplethysmography., Surv Ophthalmol. 1985 Jan-Feb;29(4):276-292., PMID: 3885452 Review.