Author's response to reviews

Title: Utility of Carotid Duplex Ultrasonography in a general inner-city hospital

Authors:

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Author's response to reviews: see over
Dear Editors,

I’m really grateful for the time and effort taken by reviewers to review my manuscript and give comments. Please see my comments addressing them below:


**Reviewer 1**

1. The manuscript is not well structured. Much more is needed in terms of clarity. In particular,
   a. “Introduction” should make clearer the usefulness of the proposed study (some interesting references can be obtained by the “Discussion” section).

   **Author comment:** I’ve updated the introduction section to address this. Thank you for your comment as this will make our introduction clearer.

   b. “Materials and Methods” and “Results” sections should provide clearer information regarding the statistical analysis and the obtained results.

   **Author comment:** I’ve clarified it and added more details regarding this in the manuscript. Please see manuscript.

   c. “Discussion” should provide more in terms of comments regarding the obtained results and of consideration of how these might impact on future studies.

   **Author comment:** The primary purpose of this study was to determine whether carotid ultrasound was used appropriately or whether it was used in unclear indications. Based on our results we found it was used quite often in uncertain indications according to 2011 ACC guidelines. We hope physicians will use our study to recognize the overutilization of CDUS and use it on recommended indications. Moreover, this can guide future randomized prospective studies to provide conclusive guidelines on CDUS use in uncertain use indications.

2. Please provide more details about the ultrasound equipment setup and please provide information regarding the reproducibility of the performed measurements.

   **Author comment:** Details of CDUS protocol added in Material and Methods section of manuscript/

**Reviewer 2**

1. The type of patients recruited by the center is not specified in the article (only partly in the cover letter). The findings should be discussed considering the selection bias.
Author comment: We included demographic information such as age, gender, and clinical characteristics such as smoking status, diabetes mellitus, systemic hypertension, coronary artery disease, and peripheral artery disease. However, we didn’t collect information regarding race, socioeconomic status, BMI and dyslipidemia. On the other hand, our data includes 25 out of the 62 patients that underwent Orthotopic heart transplantation in 2013 at our hospital. This is novel as utility of screening CDUS before heart transplant has not been studied to our knowledge.

2. Indication for the exams performed is not mentioned. Since the authors consider appropriateness issues in the discussion section, it would be appropriate to calculate how many exams were inappropriate according to current guidelines and calculate the prevalence of extracranial cerebrovascular disease in patient with an appropriate indication or not. This could represent an element of novelty that by now is lacking.

Author comment: Thank you for this suggestion. We have added a Table 2 (please see manuscript) highlighting the prevalence of carotid artery stenosis in patients with appropriate use indications compared to uncertain/inappropriate use indications.

3) Characteristics associated to extracranial cerebrovascular disease were age >65 years, presence of carotid bruit and prior CEA. These results should be commented in the discussion section: were they surprising according to current literature?

Author comment: Higher yield in these categories was not surprising. However, low yield in other categories was surprising. We have added this in the discussion section.

4) Which is the take-home message of this paper? Would you recommend to perform carotid ultrasound only in patients with age >65 years, presence of carotid bruit and prior CEA in a population comparable with yours? How many false negative cases there are by using only the abovementioned clinical characteristics in the study population?

Author comment: Although these 3 risk factors have higher likelihood of significant carotid artery stenosis, we recognize that certain patients may be at higher risk and CDUS may need to be done in asymptomatic patients with CAD. Being a retrospective study, a prospective randomized study is needed. We have updated the conclusion section of manuscript to reflect this.
Please let me know if this is satisfactory. I’d be glad to address any more concerns or comments. Once again I truly appreciate the reviewers’ valuable comments.

Warm Regards,

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