Reviewer’s report

Title: Peripheral Artery Disease and Exertional Leg Symptoms in Diabetes Patients in Ghana.

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Reviewer: Kim Smolderen

Reviewer’s report:

This study adopted a case-control study design and enrolled 485 patients with type II diabetes and 330 non-diabetes patients. In both groups, assessments were performed to detect the presence of intermittent claudication using 2 methods: the Edinburgh Claudication questionnaire (ECQ) and the ankle-brachial index measurement. The authors looked at prevalence numbers using these criteria, evaluated the correlation between these 2 methods and looked at predictors of a low ABI. They recruited patients from Ghana.

Major points:

* Overall, I think it is great that data on peripheral arterial disease is available from this region as there is a great shortage of global data on PAD. Perhaps the framing of the paper could have been different. The authors consider the 2 assessment tools as instruments to screen for the presence of intermittent claudication. I would rather frame this paper to evaluate the correlation of these 2 instruments, as they both are measuring different things. The ECQ measures a constellation of symptoms that is consistent with the typical pain patients are experiencing when confronted with arterial obstructions in the leg arteries, whereas the other method is based on a Doppler examination and is providing an objective measure for arterial perfusion of the leg arteries. It is possible that patients' ABI values may indicate that they have a narrowing of the arteries, but at the same time, are not reporting symptoms for PAD. I would highlight these differences throughout the paper, rather than focusing on trying to find overlap between the 2 methods. Each method has its own relative weaknesses and strengths and should be used complementary.

* Also, it is unknown how representative the sample was for the region. What was the catchment area? Were rural or urban populations represented? How were patients referred to the program? This information needs to be known in order to be able to assess the generalizability of the findings.

* Can you add a hypothesis to the introduction? Can you also specify your aims more clearly and accurately? Right now, it is formulated in a very broad way.

* Page 4 - medical history; can you specify what variables?

* Page 4: "patients were considered not to have intermittent claudication if pain was reported in hamstrings, …" Was this a self-imposed definition? Presence of this pain in
the absence of calf pain, does not preclude that one has peripheral arterial disease. One can also present with atypical symptoms of PAD.

* Describe psychometric properties of the ECQ; explain the claudication definition that it uses.

* Also page 4 - was information on other cardiovascular risk factors also collected? What about smoking? Smoking is the #1 risk factor for PAD.

* Were diabetic patients matched with non-diabetic patients based on e.g. demographics? Please provide a table with patient characteristics presented by the presence of diabetes and the p-values for the differences between these groups. This information will help the reader to evaluate whether the 2 groups that were evaluated were well balanced.

* Results - it is very unusual that there were so few patients who reported a history of smoking as the #1 risk factor for PAD is smoking. Can the authors explain and reflect on this?

* Discussion: "However, given that the prevalence of smoking, …" page 6. Can the authors elaborate on the smoking statement and back-up the statement with actual numbers and references? It is unknown to the public that smoking rates in this region of the world are particularly low in comparison with other geographical regions.

* Discussion: "more female participants had PAD than their male counterparts" page 7. Can the authors reflect on this statement. In Westernized nations, the opposite is usually seen.

* Discussion, page 7 - the fact that low ABI values were not associated with any macrovascular disease is odd and suggests more a methodological concern than an actual finding. This is a weakness and should be further explored and commented on in the discussion.

* Table 3 - use 'multivariable' instead of 'multivariate'. Not sure whether the title accurately explains what is represented in the table.

* How was the variable 'ABI' distributed? Was it normally distributed?

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?
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No

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