Author’s response to reviews

Title: Ultrasound Assessment of Tensile Stress in Carotid Arteries of Healthy Human Subjects with Varying Age

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Version: 1 Date: 07 Oct 2019

Author’s response to reviews:

Thank you for your letter and for the referees’ concerning our manuscript. We have studied their comments carefully and have made correction that we hope meet with their approval.

Answers to Reviewer 1
Q: The circumferential tensile stress (TS) derived from Laplace’s law can be used to assess the transmural pressure of vascular, which is one of the mechanical properties of the artery wall. TS could exhibit different responses of the arterial wall to blood pressure, blood flow and arterial structure, and is an important indicator of atherosclerosis. Shear wave-based elastography techniques have received wide attention for noninvasive assessment of elasticity and viscosity properties. This manuscript demostraed that ultrasonic shear wave imaging could be used to quantitatively assess carotid viscoelasticity and the carotid TS was related to its elasticity while little related to its viscosity.

There are some errors need to be addressed.
Leave a blank space between some symbols and numbers. Such as in page 2 line 50, r = 0.359 instead of r=0.359 would be better. There are many similar problems. In page 6 line 48, cm2 should superscript 2. In page 7 line 6, P &lt; 0.05 instead of P&lt;0.05, and so on. In page 9 line 23, patterns instead of patters.

A: This manuscript has been reviewed by a specialist of radiology who works in Tomas Jefferson University. He gives us some advice and helps us to correct the sentence structure and grammar.
Answers to Reviewer 2
Q1: The subheadings in the abstract section are shown as a part of the previous sentences and not as a separate sub heading.

A: We corrected it.

Q2: Grammatical errors and improper spacing in almost every sentence throughout the manuscript in all sections.

A: This manuscript has been reviewed by a specialist of radiology who works in Tomas Jefferson University. He gives us some advice and helps us to correct the sentence structure and grammar.

Q3: Was 'age' the only inclusion criteria?

A: Yes, age was the only criteria. The effect of age on blood vessels is relatively clear, so this preliminary and exploratory study considered age as the only criteria.

Q4: Result analysis is very brief and abrupt. Needs to be expanded.

A: The analysis was expanded and expressed in Line 386-445.

Q5: Importance of your study and its implication in assessing carotid viscoelasticity needs to be explained in detail.

A: Changes in the mechanical properties of artery reflect the process of arteriosclerosis. However, the arterial viscoelasticity is one of the important mechanical characteristics. Ultrasonic shear wave may assess potentially the vascular elasticity, so we tried to evaluate vascular properties using this technique. This is a preliminary, exploratory study. In this study we only include the subjects with healthy carotid arteries. In the future, we will explore the value of using this technique to characterize the tensile stress features of the carotid arteries with pathology, such as atherosclerosis.