Importance of the accurate measurement of carotid intima-media thickness for evaluating the relationship between blood pressure and vascular damage

To the Editor We read an article by Jankowski et al[1] with great interest. The authors emphasized that the intima-media thickness (IMT) is correlated more with central than with peripheral blood pressure and that the association between IMT and central blood pressure may be affected by sodium intake.[1] Several studies focused on important methodological aspects in order to guide a precise measurement of IMT.[2-5] Research methodology must be based on the recommendations of the Mannheim consensus.[2] In particular, some additional technical aspects that deserve attention include a variety of acoustic settings inherent to the ultrasound imaging device, such as the dynamic range, output and receiver gains, and transducer frequency.[4-5] For example, for a fixed gain level, a 5-decibel increase in the dynamic range will result in an increase in wall thickness of 0.003 ±0.002 mm (P <0.001).[4,5] The authors did not mention this issue in the materials and methods section of their study. In addition, there is no information on the cardiac cycle, which should be taken into account when measuring the IMT. The optimal diameter should be obtained at end-diastole gated by the R wave on electrocardiography.[2]

In conclusion, it is essential to pay specific attention to quality control in image acquisition, measurement, interpretation, and reporting when measuring the IMT, especially in studies on biomechanical properties of the cardiovascular system.

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Conflict of interest The authors declare no conflict of interest.

REFERENCES

1 Jankowski P, Stolarz-Skrzypek K, Kawecka-Jaszcz K, et al. Does sodium intake affect the relationship between blood pressure and vascular damage? Pol Arch Med Wewn. 2015; 125: 347-357.

2 Rewiuk K, Grodzicki T. C-reactive protein, von Willebrand factor and carotid artery intima-media thickness correlate with CHA2DS2-VASc in patients with acute atrial fibrillation. Pol Arch Med Wewn. 2015; 125: 835-844.

3 Kurnatowska I, Grzelak P, Masajtis-Zagajewska, et al. Effect of vitamin K2 on progression of atherosclerosis and vascular calcification in nondialyzed patients with chronic kidney disease stages 3-5. Pol Arch Med Wewn. 2015; 125: 631-640.

4 Inci MF, Ozkan F, Demir CF. The measurement of carotid intima media thickness precisely and accurately for evaluating epilectic children treated with oxcarbazepine. Brain Dev. 2013; 35: 694.

5 Ozkan F, Inci MF, Demir CF. Importance of accurate measurement of carotid intima-media thickness for evaluating epileptic children treated with valproate. Childs Nerv Syst. 2013; 29: 355-356.

Authors' reply The authors chose not to respond.