



The impact of hyperlipidemia and carotid atherosclerosis

Szu-Ting Yang^{a,b,c}, Chia-Hao Liu^{a,b,c}, Peng-Hui Wang^{a,b,c,d,*}

^aDepartment of Obstetrics and Gynecology, Taipei Veterans General Hospital, Taipei, Taiwan, ROC; ^bInstitute of Clinical Medicine, National Yang Ming Chiao Tung University, Taipei, Taiwan, ROC; ^cFemale Cancer Foundation, Taipei, Taiwan, ROC; ^dDepartment of Medical Research, China Medical University Hospital, Taichung, Taiwan, ROC

DEAR EDITOR,

We have read the article entitled “Combined effects of hypertension, hyperlipidemia, and diabetes mellitus on the presence and severity of carotid atherosclerosis in community-dwelling elders: A community-based study” published in the February issue of the *Journal of the Chinese Medical Association* with interest.¹ Lu et al¹ investigate the effect of comorbidities, such as hypertension, diabetes mellitus (DM), and hyperlipidemia on carotid atherosclerosis in community-dwelling elders. The authors found that the number of comorbidities was the most predictive factor of incidence and severity of atherosclerosis. We congratulated the authors’ successful publication, but there are some questions that raised our curiosity, and clarification is greatly appreciated.

First, the authors did not provide the indications for these participants’ extracranial carotid artery ultrasound scans. The wide screening of the carotid atherosclerosis in the general population is still highly debated.² Without a clear demonstration of the background of the current study, the findings may be at risk of bias.

Second, it is necessary to give a clear description of the time interval between measurements of background data, such as blood pressure (BP) measurement, glucose, total cholesterol, high-density lipoprotein cholesterol, low-density lipoprotein cholesterol (LDL-C), and triglycerides (TG) levels and performing a carotid artery ultrasound scan. The background data may be varied greatly and at a high risk of misinterpretation.

Third, it is believable that some patients might be treated with antihypertensive agents, antidiabetic, and antihyperlipidemic medications, and these critical confounding factors should not be neglected. Without the aforementioned information, it is hard to define the relationship between hypertension, DM, hyperlipidemia, and atherosclerosis. Furthermore, we believe that this is the explanation that hyperlipidemia alone or DM alone did not demonstrate an increased odds ratio for atherosclerosis in

this study. Based on their results, we are wondering to know whether the consequence hypothesis as “subjects affected by hyperlipidemia alone might not benefit from lipid-lowering treatment” could be made. The 2019 American College of Cardiology/American Heart Association guideline pointed out that statin therapy is the first-line treatment for primary prevention of atherosclerotic cardiovascular disease in patients with elevated LDL-C levels, those with DM, who are 40–75 years of age, and those determined to be at sufficient risk.² Another meta-analysis also reported the role of statin in the secondary prevention of stroke with atherosclerosis.³

Finally, the author concluded that controlling BP precedes controlling blood lipids and glucose to reduce the impact of atherosclerotic diseases.¹ This suggestion is relatively confusing and may not be a good recommendation in clinical routine practice, because lipid profile, blood glucose, and BP can be controlled simultaneously without conflict.

Overall, we appreciate the authors’ great work focusing on this topic. The author contributed a point of view regarding atherosclerosis and the associated factors including hypertension, DM, and hyperlipidemia.⁴ This is of great importance because atherosclerosis is highly associated with bad prognosis such as ischemic stroke and coronary artery disease.^{5–7} Nevertheless, we should interpret the statistics with more caution and take possible bias into consideration, to avoid the risk of misinterpretation, which have been well-known in the literature.^{8,9} We hope to learn more from the authors with a positive response.

ACKNOWLEDGMENTS

This article was supported by grants from the Taiwan Ministry of Science and Technology, Executive Yuan, Taiwan (MOST 110-2314-B-075-016-MY3 and MOST 111-2314-B-075-045), and Taipei Veterans General Hospital (V112C-154 and V112D64-001-MY2-1). The authors appreciate the support from Female Cancer Foundation, Taipei, Taiwan.

REFERENCES

1. Lu SX, Wu TW, Chou CL, Cheng CF, Wang LY. Combined effects of hypertension, hyperlipidemia, and diabetes mellitus on the presence and severity of carotid atherosclerosis in community-dwelling elders: a community-based study. *J Chin Med Assoc* 2023;86:220–6.
2. Arnett DK, Blumenthal RS, Albert MA, Buroker AB, Goldberger ZD, Hahn EJ, et al. 2019 ACC/AHA guideline on the primary prevention of cardiovascular disease: executive summary: a report of the American College of Cardiology/American Heart Association task force on clinical practice guidelines. *Circulation* 2019;2019:e563–95.
3. Lee M, Cheng CY, Wu YL, Lee JD, Hsu CY, Ovbiagele B. Association between intensity of low-density lipoprotein cholesterol reduction with statin-based therapies and secondary stroke prevention: a meta-analysis of randomized clinical trials. *JAMA Neurol* 2022;79:349–58.

* Address correspondence. Dr. Peng-Hui Wang, Department of Obstetrics and Gynecology, Taipei Veterans General Hospital, 201, Section 2, Shi-Pai Road, Taipei 112, Taiwan, ROC. E-mail addresses: phwang@vghtpe.gov.tw; pongpongwang@gmail.com (P.-H. Wang).

Conflicts of interest: Dr. Peng-Hui Wang, an editorial board member at *Journal of the Chinese Medical Association*, had no role in the peer review process of or decision to publish this article. The other authors declare that they have no conflicts of interest related to the subject matter or materials discussed in this article.

Journal of Chinese Medical Association. (2023) 86: 451–452.

Received January 13, 2023; accepted January 14, 2023.

doi: 10.1097/JCMA.0000000000000909.

Copyright © 2023, the Chinese Medical Association. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>)

4. Lee WL, Wang PH, Yang ST, Liu CH, Chang WH, Lee FK. To do one and to get more: Part II. Diabetes and metabolic dysfunction-associated fatty liver diseases. *J Chin Med Assoc* 2022;85:1109–19.
5. Chi NF, Chung CP, Cheng HM, Liu CH, Lin CJ, Hsu LC, et al; Taiwan Stroke Society Guideline Consensus Group. Taiwan Stroke Society Guideline Consensus Group. 2021 Taiwan Stroke Society Guidelines of blood pressure control for ischemic stroke prevention. *J Chin Med Assoc* 2022;85:651–64.
6. Lim SS, Huang CC, Hsu PF, Lin CC, Wang YJ, Ding YZ, et al. Prolonged sitting time links to subclinical atherosclerosis. *J Chin Med Assoc* 2022;85:51–8.
7. Chen YL, Chi NF, Chiou HY, Hu CJ, Jeng JS, Tang SC, et al; Formosa Stroke Genetic Consortium. Formosa Stroke Genetic Consortium. Application of hyperglycemia/diabetes-derived polygenic risk scores on the risk of poor outcomes after an ischemic stroke. *J Chin Med Assoc* 2022;85:81–7.
8. Chang WH, Yang ST. Antibiotics use and worse outcome: a possibility of misinterpretation. *J Chin Med Assoc* 2022;85:1163.
9. Li YT, Chang WH. The impact of nerve-sparing robotic-assisted radical prostatectomy on positive surgical margins: Uncertainty. *J Chin Med Assoc* 2023;86:254.