

Carotid plaque burden is associated with higher levels of total homocysteine

There are several problems with the report of Li *et al.*¹ They studied sex differences, not gender differences.² They referred to carotid intima-media thickness (IMT) as atherosclerosis; it is not, and plaque burden is a much stronger predictor of cardiovascular risk than IMT.³ They referred to levels of homocysteine (Hcy), but almost certainly what they measured was total homocysteine (tHcy), which includes homocysteine, its dimer homocystine and mixed homocysteine/cysteine disulfide.⁴ Their conclusion that homocysteine levels are not associated with carotid atherosclerosis is invalid, because (a) they did not measure atherosclerosis; they only identified the presence or absence of plaque and (b) the range of homocysteine levels they studied was above the threshold for increased plaque with increasing levels of tHcy, as previously reported.⁵

Figure 1 shows the total plaque area in 2635 patients in my clinic database with levels of tHcy grouped as <10

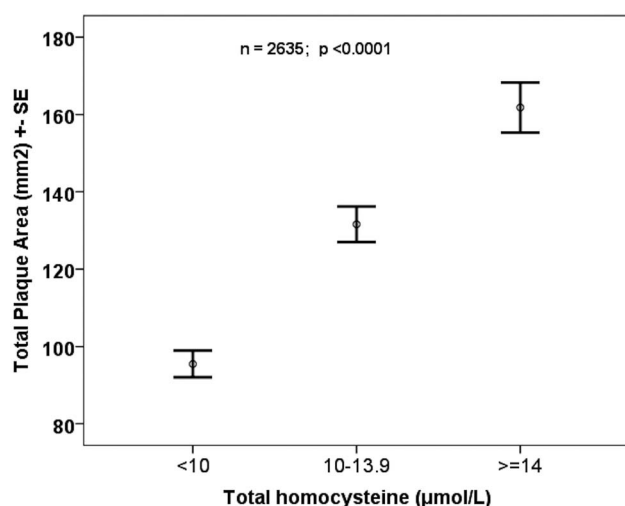


Figure 1 Among 2635 patients in the database of vascular prevention clinics, higher tHcy was associated significantly with higher total plaque area ($p < 0.0001$; ANOVA). ANOVA, analysis of variance; tHcy, total homocysteine.

($n=1296$), 10–13.9 ($n=837$), and $>14 \mu\text{mol/L}$ ($n=502$). Plaque burden was significantly greater with higher levels of plasma tHcy ($p < 0.0001$).

The authors should reanalyse their data using lower thresholds of tHcy: something like <10 , 10–13.9 and $>14 \mu\text{mol}$.

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Competing interests JDS is an officer of Vascularis.

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REFERENCES

1. Li Y, Zhang W, Fang Y, *et al.* No association between elevated homocysteine levels and carotid atherosclerosis in a rural population in China. *Stroke Vasc Neurol* 2016;1:154–60.
2. Spence JD, Pilote L. Importance of sex and gender in atherosclerosis and cardiovascular disease. *Atherosclerosis* 2015;241:208–10.
3. Spence JD. Carotid ultrasound phenotypes are biologically distinct. *Arterioscler Thromb Vasc Biol* 2015;35:1910–13.
4. Mudd SH, Finkelstein JD, Refsum H, *et al.* Homocysteine and its disulfide derivatives: a suggested consensus terminology. *Arterioscler Thromb Vasc Biol* 2000;20:1704–6.
5. Robertson J, Iemolo F, Stabler SP, *et al.* Vitamin B12, homocysteine and carotid plaque in the era of folic acid fortification of enriched cereal grain products. *CMAJ* 2005;172:1569–73.