

Carotid intima-media thickness and cardiovascular risk in patients with diabetes mellitus type 2 and chronic kidney disease

I have read with great interest the paper entitled 'Carotid intima-media thickness is an independent predictor of all-cause mortality and cardiovascular morbidity in patients with diabetes mellitus type 2 and chronic kidney disease' by Roumeliotis et al. [1]. The authors conducted a prospective study to investigate the effect of intima-media thickness of the carotid artery wall (cIMT) on cardiovascular (CV) morbidity and mortality in patients with chronic kidney disease (CKD) and diabetes mellitus type 2 (DM2). Increased body mass index (BMI), lower estimated glomerular filtration rate (eGFR) and male gender were significant predictors of increased cIMT. Hazard ratios (HRs) (95% confidence intervals [CIs]) of eGFR and cIMT for all-cause mortality were 0.96 (0.94–0.98) and 2.9 (1.03–7.99), respectively. In addition, HR (95% CI) of albuminuria and cIMT for future CV event were 1 (CI = 1.0–1.0) and 2.04 (1.1–3.78), respectively. I have some concerns on this study.

First, Cardoso et al. evaluated the effect of carotid atherosclerosis on CV event, all-cause mortality and renal outcome in patients with DM2 [2]. HR (95% CI) of 0.1 mm increment of common cIMT for CV event was 1.15 (1.02–1.31), and HR (95% CI) of increased carotid plaque score for renal outcome was 1.63 (1.09–2.43). In contrast, there was no significance in HR of IMT indicators for all-cause mortality. I suppose that the severity of diabetic nephropathy might affect CV event and all-cause mortality, and renal risk discrimination by cIMT should be specified by further study.

Secondly, during 7-year follow-up period, 44 patients died and 66 patients presented CV event. Events per independent variable in Cox proportional hazard models should be kept 10 or higher for stable estimation [3,4], and the authors used more than 10 independent variables for the prediction. I suppose that more events are needed for risk assessment.

Finally, Okayama et al. conducted a retrospective cohort study to investigate factors for CV event in patients with DM2 [5]. Adjusted HRs (95% CIs) of cIMT change, baseline cIMT, smoking, eGFR, BMI and age for CV event were 2.24 (1.25–4.03), 1.02 (1.01–1.04), 2.21 (1.27–3.20), 0.98 (0.97–0.99), 1.11 (1.02–1.20) and 1.04 (1.01–1.08), respectively. They specified that cIMT progression and baseline cIMT were both significant predictors of CV event, and eGFR was also selected. This means that change of

cIMT should be included for the risk assessment, and kidney dysfunction might also affect CV event.

Disclosure statement

No potential conflict of interest was reported by the author(s).


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Received 6 February 2020; accepted 10 February 2020

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