

Letter to the Editor

Dairy intake and CVD: causality of the association

(First published online 24 June 2016)

Alexander *et al.*⁽¹⁾ conducted a systematic review with meta-analysis of prospective cohort studies on the association between dairy intake and CVD. Relative risk estimates (95% CI) of total dairy products intake and Ca from dairy product sources for stroke were 0.91 (95% CI 0.83, 0.99) and 0.69 (95% CI 0.60, 0.81), respectively. In addition, relative risk estimates (95% CI) of cheese intake for CHD and for stroke were 0.82 (95% CI 0.72, 0.93) and 0.87 (95% CI 0.77, 0.99), respectively. However, inverse dose–response relationship between dairy products intake and CVD could not be determined. I have some concerns on their study.

First, Soedamah-Muthu *et al.*⁽²⁾ also conducted a systematic review with dose–response meta-analysis on the associations of milk, total dairy products and high- and low-fat dairy product intakes with the risk of CVD, including CHD and stroke, and total mortality. A significant inverse association was only found between milk intake and risk of overall CVD, which was not in concordance with results by Alexander *et al.*⁽¹⁾. As Alexander *et al.*⁽¹⁾ selected recent papers published after 2010, the number of papers increased from seventeen to thirty-one. In addition, the procedure of dose–response meta-analysis was clearly mentioned by dividing mean dairy product intake of each study into two or three categories. Unfortunately, a linear inverse relationship was not observed in almost all their meta-analysis. Although the authors speculated that the lack of dose–response relationship would be solved by the sufficient number of studies, there is a space for considering non-linear relationship with the existence of optimal dairy products intake for the prevention of CVD.

Relating to the first query, Huth & Park⁽³⁾ conducted a review on the relationship between milk fat-containing dairy products and cardiovascular health, and many observational studies showed no association between dairy products intake and increased risk of CVD, CHD and stroke, regardless of milk fat levels, which was in concordance with the results by Alexander *et al.*⁽¹⁾.

Second, Praagman *et al.*⁽⁴⁾ recently examined the association between consumption of several indicators on dairy products and incident stroke and CHD by a follow-up study with a median time of 17.3 years, which was not cited by Alexander *et al.*⁽¹⁾. High-fat dairy product was inversely related to fatal

stroke, but not related to incident stroke. In addition, consumption of dairy products was not a predictor for CHD.

Finally, I recommend that mortality studies and incident studies should be separated for their meta-analysis, although the number of studies becomes small. In addition, randomised controlled trials are preferable to confirm the causal association between dairy products intake and subsequent CVD risk.

Acknowledgements

This research received no specific grant from any funding agency, commercial or not-for-profit sectors.

There are no conflicts of interest in this study.

Tomoyuki Kawada

Department of Hygiene and Public Health, Nippon
 Medical School, 1-1-5 Sendagi, Bunkyo-Ku,
 Tokyo 113-8602, Japan

email kawada@nms.ac.jp

doi:10.1017/S0007114516002452

References

1. Alexander DD, Bylsma LC, Vargas AJ, *et al.* (2016) Dairy consumption and CVD: a systematic review and meta-analysis. *Br J Nutr* **115**, 737–750.
2. Soedamah-Muthu SS, Ding EL, Al-Delaimy WK, *et al.* (2011) Milk and dairy consumption and incidence of cardiovascular diseases and all-cause mortality: dose-response meta-analysis of prospective cohort studies. *Am J Clin Nutr* **93**, 158–171.
3. Huth PJ & Park KM (2012) Influence of dairy product and milk fat consumption on cardiovascular disease risk: a review of the evidence. *Adv Nutr* **3**, 266–285.
4. Praagman J, Franco OH, Ikram MA, *et al.* (2015) Dairy products and the risk of stroke and coronary heart disease: the Rotterdam Study. *Eur J Nutr* **54**, 981–990.

