More data needed on curcuminoids in hypertriglyceridaemia

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We appreciate the letter by Dr Sahebkar (Curcuminoids for the management of hypertriglyceridaemia. *Nat. Rev. Cardiol.* doi:10.1038/nrcardio.2013.140-c1)¹ on our Review article (Watts, G. *et al.* Demystifying the management of hypertriglyceridaemia. *Nat. Rev. Cardiol.* **10**, 648–661 [2013]),² and would like to make the following observations. Hypertriglyceridaemia is a common risk factor for atherosclerotic cardiovascular disease (CVD). In our Review, we focused on contemporary guidance on managing hypertriglyceridaemia for preventing and treating atherosclerotic CVD, with an emphasis on established and novel treatments. Curcuminoids, a major natural component of turmeric, has been associated with a wide range of health benefits attributable to their anti-inflammatory, antitumour, and antioxidant properties. However, the effect of curcuminoid supplementation on plasma lipid levels has not been extensively investigated. A meta-analysis of five randomized, controlled studies by Dr Sahebkar did not show a significant effect of curcuminoid supplementation on the serum triglyceride concentration, with a mean change of -1.29 mg/dl (range -9.05 to 6.46 mg/dl; $P = 0.750$).³ As described in the letter by Dr Sahebkar, several studies have demonstrated that curcuminoid supplementation decreases the serum triglyceride concentration. Mohammandi *et al.* reported that curcuminoid supplementation (1 g daily for

30 days) decreased the serum triglyceride concentration by approximately 10%.⁴ Another short-term (7-day) study showed that a low dose of curcuminoid supplementation (0.5 g daily) decreased the serum triglyceride concentration by 47%, whereas a high dose (6 g daily) only decreased the serum triglyceride concentration by 15%.⁵ DiSilvestro *et al.* demonstrated that a low dose of lipidated curcumin (0.8 g daily) modestly decreased the plasma triglyceride concentration by 10%.⁶ Na *et al.* found that a low dose of curcuminoid supplementation (0.3 g daily for 3 months) decreased the serum triglyceride concentration by 17%.⁷ Notably, in the majority of studies, the effect of curcuminoid supplementation was examined in individuals with normal triglyceride levels.

Taken together, no definitive evidence exists to support the use of curcuminoid supplementation to treat patients with hypertriglyceridaemia. Therefore, we consider that more research is required before deriving any recommendations on the clinical use of curcuminoids in the management of hypertriglyceridaemia. Studies of the effects of curcuminoid supplementation, alone or in combination with a statin, on postprandial lipaemia and other surrogate markers of the metabolism of triglyceride-rich lipoprotein (such as apolipoprotein [apo] B-48, apoB-100, apoC-III, and remnant-like particle-cholesterol) also merit investigation.

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Competing interests

G. F. Watts declares associations with the following companies: Abbott, Amgen, Genfit, Merck & Co., and Sanofi. See the article online for full details of the relationships. The other authors declare no competing interests.

1. Sahebkar, A. Curcuminoids for the management of hypertriglyceridaemia. *Nat. Rev. Cardiol.* <http://dx.doi.org/10.1038/nrcardio.2013.140-c1>.
2. Watts, G. F., Ooi, E. M. & Chan, D. C. Demystifying the management of hypertriglyceridaemia. *Nat. Rev. Cardiol.* **10**, 648–661 (2013).
3. Sahebkar, A. Systematic review and meta-analysis of randomized controlled trials investigating the effects of curcumin on blood lipid levels. *Clin. Nutr.* <http://dx.doi.org/10.1016/j.clnu.2013.09.012>.
4. Mohammadi, A. *et al.* Effects of supplementation with curcuminoids on dyslipidemia in obese patients: a randomized crossover trial. *Phytother. Res.* **27**, 374–379 (2013).
5. Pungcharoenkul, K. & Thongnophua, P. Effect of different curcuminoid supplement dosages on total *in vitro* antioxidant capacity and cholesterol levels of healthy human subjects. *Phytother. Res.* **25**, 1721–1726 (2011).
6. DiSilvestro, R. A., Joseph, E., Zhao, S. & Bosmer, J. Diverse effects of a low dose supplement of lipidated curcumin in healthy middle aged people. *Nutr. J.* **11**, 79 (2012).
7. Na, L. X. *et al.* Curcuminoids exert glucose-lowering effect in type 2 diabetes by decreasing serum free fatty acids: A double-blind, placebo-controlled trial. *Mol. Nutr. Food Res.* **57**, 1569–1577 (2013).