

## CORRESPONDENCE

## Is hypovitaminosis D a consequence rather than cause of disease?

Chalmers and colleagues<sup>1</sup> have shown that vitamin D deficiency is common in bronchiectasis and correlates with markers of disease severity. The authors comment that although the study has identified a strong association, this does not demonstrate causality, but the results justify a randomised controlled trial of vitamin D therapy to determine if supplementation can improve outcomes. They mention that reduced outdoor physical activity and reduced exposure to sunlight might contribute to vitamin D deficiency.

One possibility that the authors have not considered is that hypovitaminosis D may be a consequence rather than cause of disease. Vitamin D deficiency has been associated with an ever-expanding list of diseases.<sup>2</sup> These have largely been observational studies, and when the benefits of vitamin D supplementation have been tested in randomised controlled trials, they have often not been confirmed.<sup>2</sup> Gama and colleagues<sup>3</sup> have produced evidence that vitamin D is a negative acute-phase reactant (APR), and there can be a marked fall in serum vitamin D levels during a systemic inflammatory response. This would suggest that serum vitamin D is an unreliable marker of true vitamin D status following an acute inflammatory insult, and also that hypovitaminosis D may be the consequence, rather than the widely purported cause, of a myriad of chronic diseases.<sup>3</sup>

APRs accompany both acute and chronic inflammatory states. One would, therefore, not be surprised to find a correlation between severity of bronchiectasis and a rise in positive APRs (eg, C-reactive protein or ferritin), and neither would it be surprising to see a correlation with a *fall* in levels of negative APRs (eg, albumin, transferrin or vitamin D).

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- 3 Gama R, Waldron JL, Ashby HL, *et al*. Hypovitaminosis D and disease; consequence rather than cause? *BMJ* 2012;**345**:e5706.