

Vitamin D deficiency: A potential risk factor for *Clostridium difficile* infection

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In the July 3, 2012 issue of the journal of Risk Management and Healthcare Policy, Martinez et al present a nice review on *Clostridium difficile* (*C. difficile*) infections.¹ The different manifestations of this challenging disease along with the high cost and burden on the health care system were discussed. While the authors did an admirable job in discussing traditional risk factors, they do not mention vitamin D deficiency.

Vitamin D deficiency has reached a pandemic status.² Vitamin D has an important role in boosting the innate immunity, and thus preventing infections.³ We have recently reviewed the potential role of vitamin D in the prevention of hospital acquired infections.⁴ In a veterans study, vitamin D deficiency in patients with *C. difficile* was associated with significantly increased total costs and fee-based consultation. The deficient patients had five times higher costs than the non-deficient patients.⁵ Most cells have vitamin D receptors and vitamin D has a plethora of actions leading to boosting innate immunity including increased oxidative burst of macrophages and enhancing neutrophil motility and phagocytic function, T cell activation and increased expression of antimicrobial peptides, such as cathelicidin, and beta-defensins. While awaiting additional confirmatory studies of the antimicrobial effects of vitamin D, there are sufficient benefits including better intensive care unit outcomes,⁶ for the authors to include a vitamin D replete state as a part of their therapeutic approach. Vitamin D is inexpensive and has the potential to tilt the balance in favor of patients with this devastating infection.

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