Abstract


Vitamin B12: the forgotten micronutrient for critical care.

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PURPOSE OF REVIEW: To analyse the anti-inflammatory and antioxidant properties of vitamin B12 and evaluate current evidence on vitamin B12 status in the critically ill with systemic inflammation.

RECENT FINDINGS: Data on vitamin B12 status of intensive care unit patients are scarce. Cobalamins could potentially be useful agents for inhibiting nitric oxide synthase and nitric oxide production, controlling nuclear factor-kappa B activation, and restoring optimal bacteriostasis and phagocytosis in which transcobalamins play a proven role. The antioxidant properties of vitamin B12, with a glutathione-sparing effect, are secondary to stimulation of methionine synthase activity and reaction with free oxygen or nitrogen radicals. Large parenteral doses are routinely administered for cyanide poisoning, with only mild, reversible side-effects. Current evidence suggests that high-dose parenteral vitamin B12 may prove an innovative approach to treat critically ill systemic inflammatory response syndrome patients, especially those with severe sepsis/septic shock. In this setting, vitamin B12 and transcobalamins could modulate systemic inflammation contributing to the anti-inflammatory cascade and potentially improve outcome.

SUMMARY: Despite evidence from animal studies, so far there are no clinical intervention trials that have studied vitamin B12 as a pharmaconutrient strategy for critical care. Well designed animal and clinical studies are required to clarify several outstanding questions on the optimal posology, safety, and efficacy of high-dose vitamin B12 in the critically ill.

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