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Letter to the Editor

Is vitamin B_{12} the most misused vitamin in India?

Vitamin B_{12} (cyanocobalamin and hydroxocobalamin) is an important cofactor for transfer of methyl groups in biochemical reactions. The usual daily requirement of vitamin B_{12} is about 2 μg with total reserve of about 3000 μg. Because of these physiological privileges, deficiency of vitamin B_{12} takes very long time (about 5 years) to manifest itself. The oral absorption of vitamin B_{12} is a complex process. Typically, inadequate dietary supply rarely leads to deficiency of vitamin B_{12} *per se*. Deficiency encountered in clinical setting is almost always due to insufficient absorption.

Its deficiency characteristically results in megaloblastic anemia along with neurologic abnormalities. The recommended dose and schedule vary from 100 to 1000 μg given parenterally for different duration depending on the severity of anemia and presence of neurological symptoms. Oral absorption is going to be compromised under this setting; hence, very high dose of vitamin B_{12} (1000–2000 μg) is recommended for oral administration in few countries, considering passive absorption from mucous membranes which is usually 1%.[1,2]

Vitamin B_{12} has been found to be part of many multivitamin preparations which are available in India. As of 2017, vitamin B_{12} is available as more than 484 different brands either alone or in combination approved by the Drug Controller General of India (DCGI).[3] Currently, the number of formulations is likely to be much more than this. Mostly, it is available as oral formulation in doses ranging from 5 μg to 1000 μg.

Treatment guidelines for vitamin B_{12} deficiency clearly indicate parenteral route of administration. Considering the physiological aspects of vitamin B_{12}, low doses of vitamin B_{12} is not going to provide any clinical benefit as very high dose is required for sublingual absorption. Nutritional deficiency is very much rare; hence, giving such doses will neither prevent nor treat the deficiency of vitamin B_{12}. Hence, the use vitamin B_{12} in such inappropriate doses is highly irrational and cannot be recommended. It clearly violates the principles of basic and clinical science. Further combination with multiple vitamins is also of questionable benefit. It does not have any advantage, rather will increase the cost of therapy. Despite such specific guidelines, vitamin B_{12} is available frequently in irrational doses, which makes it the highly misused vitamin in India.

Conflict of interest

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