

# The Problem of Cyanocobalamin Deficiency in a Developing Country Set-up and the Possible Solutions

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On the backdrop of an ever increasing trend towards a vegan dietary pattern for various reasons including health and religion, it becomes essential for medical professionals to gain awareness on the real health implications of such a dietary pattern. A vegan diet includes all types of fruits, vegetables, pulses, nuts and oils and it excludes any kind of animal derived foods, including milk and milk products. So, essentially a person who is on a vegan diet will miss the nutrients that have their source only in non-vegetarian foods, milk and milk products. Now, the question is whether there is any such essential nutrient which is unavailable from a vegan diet. For long, it had been thought that pure vegan food was comprehensive, but now we know that it is deficient in cyanocobalamin (Vitamin B12) and that the deficiency of this vitamin has wide ranging implications for the human health and well being, its daily requirement being in micro quantities [1].

My attention to this fact was drawn by a real field experience, when I managed a health team which catered to the requirements of a self enclosed community of vegans who had chosen the specific dietary pattern for spiritual reasons. Now, before going into the details, it is worthwhile to remember that such people who are seeking a different meaning in life and who always introspect, attribute their various psychological states to the short-comings in their own understanding of life. Not that this is a wrong notion, but this fact gains prominence when we consider the variety of psycho-physiological changes that are a known outcome of the vit B12 deficiency, albeit, the exact cause is unknown.

One member of the group of more than a hundred presented with clear signs of the sub-acute combined degeneration of the spinal cord, which was also confirmed by radio-diagnosis. This led to our inspection of other members of the group for the deficiency of vit B12, based on a symptoms and signs analysis chart which was derived from the Dr Joseph Chandy B12 Patient Support Group which was made out of 28 years of clinical practice by Horden (North East England, UK), which cared for and helped over 700 people who benefited from the Vitamin B12 replacement therapy. To our surprise, almost 70% of them turned out to be positive for the deficiency, based on the chart scores and all of them found improvement with B12 replacement doses, with more than 90% of them reporting a phenomenal improvement in their health.

The various symptoms of the vit B12 deficiency which are most often sub-clinical are wide ranging and non-specific. This includes a gamut of problems like impaired memory, sleep disturbances, exhaustion paresthesias, weakness, motor disturbances, visual disturbances, and a wide range of cognitive and behavioural changes including dementia, depression and personality changes. Tingling in the hands and feet is the most common neurological complaint. Some frequent gastrointestinal complaints include

anorexia, flatulence, diarrhoea and constipation [2,3]. These symptoms may easily be neglected or may simply be attributed to some other cause and mistreated.

In a developing country, where a medical practitioner has little time to spend with each patient, a high degree of suspicion is required, even to think of vit B12 deficiency, as most of the patients come only with non-specific symptoms and they may not even consider it important enough to mention these unless the physician probes for them. Also, the laboratory diagnosis of the vit B12 deficiency is a complicated affair, not only because there is no gold standard test, but also due to its high cost and lack of universal availability for a majority of people [4]. Also, we have to appreciate the fact that it is not just the high risk groups like vegans who face these problems, but also a multitude of people who do get the vitamin in their diet but cannot assimilate it for a variety of reasons.

Many studies are persistently revealing a high prevalence of the vit B12 deficiency in the developing countries [5]. In the western world, fortification of the vegetarian food with vit B12 is a common practice, but this is not the situation in India and in many other developing countries. Considering the large psycho-physiological morbidity which is caused by the vit B12 deficiency and the easy treatability of this condition, a different approach needs to be adopted at-least for the time being.

A simple chart to analyze the symptoms and signs, followed by the replacement by vit B12 for those who are found to be deficient, preferably by the parenteral route, would be the most efficient way to tackle this large scale problem.

The only objections that can be raised could be on these points 1. People without an actual deficiency may get the supplement and 2. The parenteral route has its own complications. These objections, though they are fair, are more than weighed down by the mass benefits that would accrue as a result of such a method. A very high dose of vit B12, even in people with normal levels of it, has never been found to be harmful [6]. Further, most of the patients do get some injection or other whenever they visit a physician, most often by demanding for one. So, injecting them with vit B12 based on the deficiency which is shown by the symptoms and signs chart, by safe injection practices which are by now universally known, would be a lot more beneficial than an analgesic or placebo shot. The cost of an oral formulation with problems of absorption and compliance make it unaffordable and unreliable.

Once the system of diagnosis by a simple clinical examination and the symptoms chart comes into vogue, a lot of people who otherwise would not have been identified and might have landed up with irreversible neurological complications could be identified and treated.

This, as a first step, can be followed up by a policy decision towards a large scale food fortification for the benefit of the vegans and for vegetarianism and its other benefits.

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