

## VITAMINS: USES AND MISUSES

The term "VITAMIN" has two components "VITA" meaning life, and "MIN" which stands for mini, thus denoting that mini amounts of vitamins are essential for life. The body itself produces adequate amounts of vitamin K for its needs and vitamin D can be produced in sufficient amounts by the skin if body is exposed to sun for twenty minutes a day, while vitamin B12 reserves of the body are sufficient for five years and those of Folic Acid for six months.

Plenty of vitamins are available in foods like vegetables, fruits, whole grain cereals, pulses, seeds, nuts, dairy products meat and vegetable oils. In fact, a balanced diet, not only provides vitamins in adequate amounts in natural form but also other natural nutrients like fibre, anti-oxidants omega acids, trace elements etc. which are beneficial in prevention of diseases and promotion of health.

Artificial Vitamin preparations may be used when deficiencies are found, which are very rare in Pakistan, those too in appropriate doses and for justifiable periods. In old age Vitamin "D" in four to eight hundred unit doses a day may be used if "diet" is inadequate to prevent weakening of bones particularly in post-menopausal women. Vitamin D is available in the natural form and its hydro-oxylated product, which is expensive should only be used for chronic renal failure patients. Hydro-oxylated Vit-D is quite often misused, being prescribed for ordinary conditions.

Folic Acid in low dose i.e 400µg daily is taken during pregnancy to prevent spinal cord defects of the foetus.

Vitamins deficiency diseases like Beriberi, Pellagra, Pernicious anaemia etc are generally not seen in Pakistan. Deficiency of fat-soluble vitamins may occur in mal-absorption syndromes which are uncommon and may need vitamin supplements i.e 10mg daily. Vit B6 in low doses is needed in tuberculosis, when INH therapy is used which may cause

it's deficiency particularly in malnourished children. Low dose Folic Acid may be required when its deficiency occurs on account of prolonged use of certain drugs like methotrexate, phenytoin etc.

If vitamins are used in excessive amounts just like food and water, they may be harmful and in mega-doses used for prolonged periods serious toxic effects may result. The examples of such toxicity include eg with vitamin A increased intra-cranial hypertension, liver failure, course rough skin, dry hair and raised ESR, calcium and serum alkaline phosphates, occurrence of renal failure with Vitamin D, renal stones with Vit C, neurological defects with Vitamin B complex and high incidence of lung carcinoma with niacin. In view of evidence suggesting that high levels of Vit A may cause birth defects woman who are or may become pregnant are advised not to take Vit A supplements including fish oil and liver products. Evidence-based Medicine has established that the use of "Vit E" in higher doses in cardio-vascular disorders results in more patient developing heart failure and it may cause haemorrhages when used with anti-platelet drugs. All the guidelines on the cardio-vascular diseases management, including the recent "British Guide-lines" on hypertension, advise against the use of vitamins and recommend well balanced diet. It is a pity to seen "Vit E" being used by the doctors including cardiologists in mega-doses and that too alongwith anti-platelet drugs on a large scale.

The only justification for the use of a vitamin in mega dose is of vitamin A, that too in one or two doses for malnourished children who suffer from measles to prevent occurrence of blindness due to the development of corneal opacities. Of course this is a failure of providing basic immunization and lack of proper nutrition. Vitamin D in high pharmacological doses may be used to treat hypocalcaemia due to hyperparathyroidism, intestinal malabsorption and chronic liver disease. All patients

receiving pharmacological doses of Vit D should have the plasma calcium concentration checked at intervals usually weekly and whenever nausea or vomiting occur. Breast milk from women taking pharmacological doses of Vit D may cause hypercalcaemia if an infant is fed on it. High doses of nicotinic acid may be used to treat hyper-lipidaemia, but it may cause side-effects like circulatory disturbances, hyperglycaemia, hyperuricaemia and liver function disturbances. High doses of Vit B6 are used for rare metabolic disorders hyperoxaluria and sideroblastic anaemia.

Some clinicians use vitamin preparations as a placebo but by definition a placebo should be harmless and inexpensive therefore for this purpose only a low dosage vitamin preparation is justifiable.

If a patient for some reason is unable to take enough nutrition it is rational to prescribe a balanced food supplement preparation containing all essential constituents of diet like carbohydrates, proteins and fats along with needed amounts of vitamins and trace elements, rather than prescribing high doses of vitamin preparations.

Vitamins are misused on a very large scale in Pakistan causing loss of enormous amounts of scarcely available national finances. Parenteral vitamin B complex preparations are misused a lot, of causing not only financial losses but also are a cause of spread of serious diseases like hepatitis B,C and even HIV due to use of contaminated syringes. Parenteral B complex injections may also cause deaths due to anaphylactic reaction. I know of a doctor whose daughter died due to anaphylactic reaction on receiving an injection of Vit B complex.

Currently the most widely misused vitamin is Vit B12, the deficiency of which does not occur in Pakistan. Vitamin B12 is required in scientifically developed countries where B12 deficiency disease i.e pernicious anaemia is seen. The preparations available there are in the form of "Cyanocobalamin"

and "Hydroxy-cobalamin", mostly the latter due to its advantage of having longer half-life. In Pakistan an analogue of Vitamin B12 by the name of Methyl-cobal which is an inferior version of Vit B12 declined registration in the scientifically developed countries was granted registration here by the Drug Registration Board though its registration had been rejected earlier on the advice of genuine medical experts including. Furthermore those of the WHO methyl-cobal injectable preparation was awarded the high price of Rupees eighty approximately per ampoule, while "Cyanocobalamin" preparation was available at a price of Rs two per ampoule. Similarly methylcobal tablets were awarded a very high price. Later on Cyanocobalamin totally disappeared from the market which was monopolised by methyl-cobal. In addition unethical and unscientific aggressive promotion with advertisements that methyl-cobal is effective for virtually all neurological and psychiatric disorder, general symptoms like weakness, aches, pains, orthopedic disorders, rheumatic disorders and many other ailments was allowed, with the result that the much needed public funds were wasted. Other irrational vitamin preparations are combination of calcium and high doses of vitamin "C" which may cause renal stones and an analogue of vitamin B1 which is allowed promotion for all sorts of weaknesses, physical, mental, sexual etc. Furthermore, in the market many vitamin preparations combined with herbs and even hormones are sold over the counter with the propaganda that herbs are without any side-effects. This is not true as many "herbs" have been found to cause serious toxicity even damage to the liver, kidneys and bone-marrow etc.

Due to irrational drug registration the Pakistani market is flooded with irrational medicines, robbing the Nation of its health and meager finances available for the health care of the people.

On the other hand, many of the Essential Drugs which are effective and safe and affordable i.e cost-effective which can fulfill the needs of over eighty percent of the population are either not available or scarcely available. Here it is pertinent to point out that the Essential Drugs are freely available in other countries including those in Pakistan's neighborhood, like Iran, India, Bangladesh, Sri Lanka, Nepal and Bhutan. There is a dire need to rationalize the drug policy in Pakistan

so that useless and irrational drugs are removed and the essential drugs are made available at an affordable price all over the country.

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