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Vitamin A deficiency

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Abstract:

In this report I will take about vitamin A deficiency in the children and pregnancy women is called rerinol or anti-blindness vitamin active form is three active forms of vitamin A in the body are retinol, retinal, and retinoic acid. Sources ; in the egg yolk and milk and other vegetables , absorption and transport of vitamin A by the liver and, release from the liver function of vitamin A in the visual cycle ,growth , maintenance of healthy epithelial cells , reproduction , antioxidant activity , the uses to treatment tretinoin , isotrerinoin when have deficiency of vitamin A that will leads to same sings and symptom in eyes and skin .

Introduction:

Vitamin A ,called retinel or anti-blindness vitamin active form of vitamin A in body are retinol,retinal and retinoic acid and several provitamin A carotenoids (most notably beta-carotene).have many function , in visual cycle ; component of the visual pigments of rod and cone cells, retina ,consists of 11-cis retinal specifically bound to the protein opsin then called rhodopsin is exposed to light, a occur photochemical isomerization the process tirggers a nerve impulse that is transmitted by the optic nerve to the brain ,which release of all –trans retinal and opsin, regeneration of rhodopsin requires isomerization of all trans retinal back to 11-cis retinal , sources in ,egg yolk , milk , cheese butter and fish liver oils, carrots ,mango and green leafy vegeables , structure; the are three chemical forms of vitamin A , alchohol form retinol key player ,can be converted to other forms ,retinol is found in animal tissues as a retinyl esrer with long chain fatty acids. Aldehyde form ;retinal or retinaldehyde this is the aldehyde derived from the oxidation of retinol.acid form retinoic acid the retinal may be reduced th retinol by retinal reductase ,this reaction is readily reversible.Beta- carotene ; plant foods ,contain which be oxidatively cleaved in the intestine to yield two molecules of retinal. Transport to the liver ,retinyl esters present in diet are hydrolyzed in the intestinal mucosa ,releasing retinol and free fatty acids, retinol derived from esters and from the cleavage and reduction of carotenes is re-esterified to long-chain fatty acids in the intestinal mucosa and secreted as a component of chylomicrons into the lymphatic system, retinyl esters contained in chylomicron remnants are taken up by and stored in , the liver .release from the liver by the plasma retinal binding protein (RBP),attaches to specific receptors on the surface of the cells of peripheral tissues, permitting retinal to enter carries retinol to site in the nucleus where the vitamin acts in a manner analogous to that of steroid hormones.and play role in growth in children and bone development vitamin A accelerates the normal growth of bones and teeth , maintenance of healthy epithelial cells essential for normal differentiation of epithelial tissues and mucus secretion ,has antioxidant activity ,therapeutic uses in psoriasis ;tretinoin (all-trans retinoic acid) and, severe acne ;isotretinoin(13-cis retinoic acid),when same body have deficiency of vitamin A ,have symptoms and sings in eyes night blindness (nyctalopia) is one of earliest signs of vitamin A prolonged deficiency leads to an irreversible loss in the number of visual cells ,dry cornea , fissuring of cornea , bitot's spots (greyish-white areas in the conjunctiva) and, skin keratinization and xeroderma (dry and rough skin) . increase in this vitamin that will leading to toxicity early sings of chronic hypervitaminosis a are reflected in the skin, which skin become pruritic and , liver; which becomes enlarged and can become cirrhotic and in the nervous system ,where a rise in intracranial pressure may mimic the symptoms of a brain tumor in the pregnant women particularly should not ingest excessive quantities of Vitamin A , which form causing congenital malformstions in the fetus. Possible interactions Anticoagulants. Oral use of vitamin A supplements while taking these medications used to prevent blood clots might increase your risk of bleeding.

Bexarotene (Targretin). Taking vitamin A supplements while using this topical cancer drug increases the risk of the drug's side effects, such as itchy, dry skin.Hepatotoxic drugs. Taking high doses of vitamin A supplements can cause liver damage. Combining high doses of vitamin A supplements with other drugs that can damage the liver could increase the risk of liver disease.Orlistat (Alli, Xenical). This weight-loss drug can decrease the absorption of food sources of vitamin A. Your doctor might suggest that you take a multivitamin with vitamin A and beta-carotene while taking this medication.Retinoids. Don't use vitamin A supplements and these oral prescription drugs at the same time. This could increase the risk of high vitamin A blood levels.

Discussion:

The first study vitamin A deficiency and xerophthalmia among school-aged children in Southeastern Asia subject of this study is the target group estimation was children 5–15 y of age this group old children have VA deficiency is 23.4%, suggesting that there are ∼83 million VA-deficient school-aged children in the region, of whom 10.9% (9 million, at an overall prevalence of 2.6%) have mild xerophthalmia (night blindness or Bitot's spot) and doesn't do any Interventions Potentially blinding corneal xerophthalmia appears to be negligible at this age. in India unweighted estimate of 69.3% for children with serum retinol concentrations <0.70 μmol/l. In the absence of other data, a weight of 0.3 was arbitrarily applied to this value in an attempt to account for both uncertainty and lack .Second study Night Blindness During Pregnancy and Subsequent Mortality among Women in Nepal: Effects of Vitamin A and β-Carotene Supplementation Subjects for this study were married women aged 13–45 years who participated in a double-masked, placebo-controlled, cluster-randomized trial that assessed the effects of a single weekly dose of vitamin A Supplementation for women of reproductive age in the study area was started approximately 1 year before pregnant Women who reported night blindness for at least 1 week during pregnancy were considered night-blind cases. Survival status was recorded from the time women declared being pregnant.

Conclusions:

vitamin A deficiency and xerophthalmia among school-aged children in Southeastern Asia subject of this study is the target group estimation was children 5–15 y of age this group old children have VA deficiency**,** Second study Night Blindness During Pregnancy and Subsequent Mortality among Women in Nepal: Effects of Vitamin A and β-Carotene Supplementation night blindness due to VA deficiency is common during pregnancy among women Nepal.

References:

(1).Fennema O (2008). *Fennema's Food Chemistry*. CRC Press Taylor & Francis. pp. 454–455.

(2).Rodwell, V. W., Botham, K. M., Kennelly, P. J., Weil, P. A., & Bender, D. A. (2015). Harper's illustrated biochemistry (30th ed.). New York, N.Y.: McGraw-Hill Education LLC.

(3).Kumar V ., Abbas A, Fausto N ., Mitchell R.: Robbins Basic pathology, 8th ed, Elsevier saunders, philadalphia, 2007.

(4).Goodman & Gilman's the pharmacological basis of therapeutic-11th ed ,(2006).