Libyan International Medical University

Faculty of Basic Medical Science

2017-2018/Year

How alcohol leads to malnutrition and it's complications

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Date of Submission : April 13 , 2018

Abstract: alcohol consumption by evidence in recent studies is thought to play a role in causing malnutrition , either by breaking down the gastrointestinal tract digestive enzymes thus preventing nutrient metabolism and absorption , or impairing nutrient active transport and increasing gut wall permeability by cause damage to the gut mucosa , alcohol is also known to be a diuretic leading to fluid and nutrient loss through micturition , important nutrient deficiencies include protein deficiency , fat-soluble vitamins such as vitamin A (retinol) , vitamin E , vitamin D , vitamin K and water soluble vitamins such as vitamin B1 (thiamine) , vitamin B2 (riboflavin) , vitamin C (ascorbic acid) , niacin (vitamin B3 , nicotinic acid) , vitamin B6 (pyridoxine) , , folic acid deficiency , also fluid loss during micturition leads to dehydration and loss of important ions such as magnesium , potassium and sodium , a deficiency in these nutrients may lead to life threating complications and for that reason it is best to avoid intake of alcohol[1,2,3,4]

Introduction : Alcohol consumption is a normal habbit and social activity in most countries especially western and asian countries , it is thought to give a sense of reward and satisfaction , although recent studies have confirmed that excessive alcohol consumption through several different ways may cause malnutrition , depend on the nutrient deficient , several different complications and consequences develop , how these series of pathological events occurs is what this report is mainly about .[1,2,3,4]

Discussion:

Causes of malnutrition : malnutrition may indirectly occur from a mere influence on the alcoholic person's diet , in which he or she replaces carbohydrate and mineral rich food with alcohol in consumption , or in other cases alcohol may disrupt and damage the gastrointestinal tract mucosa resulting impaired nutrient absorption , in addition nutrients may leak from the blood to the GUT lumen due to the increased mucosal permeability ; alcohol may also breakdown the intestinal digestive enzymes preventing nutrient metabolism which further more prevents their active transport and absorption , in addition alcohol also increases GIT motility resulting in decreased absorption of nutrients , as for the metabolism of alcohol it requires the consumption of vitamin B1 (thiamine) and niacin which may lead to their deficiency ; also the fact that alcohol is considered a diuretic , it causes dehydration due to frequent urination and the loss of important minerals such as zinc , potassium and magnesium ; further more chronic alcohol consumption is known to cause liver damage potentially leading to cirrhosis , and in liver vitamins like vitamin A are normally converted to their active form , so liver damage impaires this conversion .[1,2,3,4]

Important nutritional deficiencies found in alcoholic individuals : protein forming amino acids are some of common deficiencies found in alcoholics , which lead to health hazardous complications such as albumin deficiency , a decrease in blood clotting factors which may lead to gastrointestinal bleeding , further more there is a decrease in uric acid synthesis and since uric acid rids the body of excess ammonia through urine excretion , a decrease in uric acid the retention of excess ammonia which may lead to hepatic encephalopathy thus affecting the brain , in addition to protein deficiencies , several vitamins may be deficient in alcoholics , including vitamin A , specifically when liver damage occurs leading to the impaired conversion B-carotene to the active form of vitamin A (retinol) , thus leading to an increased serum level of B-carotene , proving this theory a study was done on baboons , where alcohol was administered first for 4 to 6 weeks and resulted in a 60% reduction of the liver vitamin A , it aggravated in the 7 to 9 week administration

to 72% , also the baboons received 5 times the normal vitamin A dose and still the vitamin A levels remained the same , in terms of complications vitamin A deficiency may lead to night blindness , , xeropthalmia , hair and skin dryness , vitamin B1 (thiamine) deficiency leads to beri beri causing failure in muscle coordination since thiamine is responsible for carbohydrate metabolism and formation of ATP , a severe form of beri beri causes Wernicke – korsakoff syndrome characterized by phsycosis , irreversible memory loss and brain shrinkage , as for the deficiency in niacin (nicotinic acid or vitamin B3) , it leads to sleeping disorders since niacin enters in the formation of the hormone melatonin which regulates the sleeping cycle , folate deficiency can lead to megaloblastic anemia and interfere with spinal cord formation in early pregnancy since it's required for normal DNA synthesis and red blood cell maturation , it also impaires the absorption of H2O , glucose and sodium , the lack of sleep obtained by sleeping disorders and other alcoholic symptoms causes a lot of stress that stimulates the release of cortisol which stimulates fat retention , cortisol is lowered by vitamin C (ascorbic acid) , so the constant consumption of vitamin C leads to scurvy and also quick aging because vitamin C is responsible for the synthesis of collagen ,a protein found in the body's skin and other body connective tissue , vitamin D deficiency leads to riskets in children and osteomalcia in adults since vitamin D aids the absorption of calcium in the gastrointestinal tract , vitamin E deficiency leads to spinocerebellar degeneration .[1,2,3,4]

Conclusion : recent studies have confirmed that alcohol indeed through several different ways leads to malnutrition , which have both physical and psychological consequences and complications , for that reason , it is important to avoid alcohol consumption and as for drinkers , it recommended to drink less (moderately) and to obtain adequate nutrition in diet .[1,2,3,4]

References:

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