



THE NUTRITIONAL STATUS OF INPATIENT DRUG ADDICTS AND THE IMPACT OF MEDICAL NUTRITION THERAPY (MNT) INTERVENTION ON RECOVERY

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ABSTRACT

Purpose: The purpose of this paper is to overview the literature about the nutritional status of drug addicts and the effect of Medical Nutrition Therapy (MNT) intervention and nutrition education on recovery.

Methodology: The literature was obtained through searching library databases (MEDLINE/PubMed, PsycINFO, Agricola and EMBASE). It is a summary of both conceptual and empirically published literature on drug addiction and nutrition intervention.

Outcomes: Addicts were found to be malnourished, macro- and micro-nutrient deficient. MNT improved the recovery. Personalised nutrition counselling and inclusive nutrition education programmes increase recovery chances, and are positively related to drug abuse treatment programme outcomes.

Practical Implication: Nutritional education and MNT intervention will enhance the detoxification process, speed recovery and lessens the hospitalisation period of addict patients and the economic burden upon governments. More dietitians will be employed at addiction hospitals.

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Social Implications: To create a productive, healthy lifestyle by managing the addiction healing process.

Originality and Value: This paper examines and emphasises the key role of MNT intervention and nutritional education in the detoxification process, incorporating dietitians in drug rehabilitation programmes.

Key Words: addiction; nutrition; therapy; recovery; detoxification; intervention; dietitian

INTRODUCTION AND OBJECTIVES

Drug addiction is a complex lifestyle disorder. Recently it has become a social, economic worldwide and community health problem. No country is protected from the terrible consequences of illegal drug use, and it has become a great concern to all societies (Finnegan, 1998). The harmful use of drugs has caused community violence all over the world. Constructive young adults are falling into drug experimentation (Johnson and Gerstein, 1998). Addiction becomes a trend between adolescents who become less productive.

The Diagnostic and Statistical Manual (DSM) of mental disorders described addiction as a chronic illness, defined by the demand for drugs and obsessive or hard to control use; this is despite the known unsafe consequences. Addiction is considered as a brain illness as it results in physiological and anatomical brain changes, which can be life-long, and can result in destructive behaviours seen in addicted people.

Adding to the psychological changes, research suggests that addiction results in physical changes, which can frequently lead to severe nutritional deficiencies, biochemical imbalances, and digestion disorders. As the body imbalance increases, the body becomes more dependent on drugs to improve the problems and to feel balanced for short periods of time. Therefore without the correction of these biochemical imbalances by good nutrition, more drugs will be needed to correct the imbalances.

A study carried out by Feinman (1989), showed that most addicts suffer from nutritional, biochemical and metabolic disorders that should be corrected before they choose to be outpatients and progress to addiction-free living. Some of these disorders are digestive complications. This is the result of nutrient malabsorption, sensitivities and allergies to some types of foods, such as dairy products and sugar, nutritional deficiencies of some amino acids, minerals and vitamins and hypoglycaemia, which results in different symptoms such as depression, in addition to poor adrenal function.

According to Blackburn and Thornton (1979), many complications and high occurrence of chronic diseases are associated with drug addiction. Expensive hospital care for medical complications as a result of addiction, and expensive

detoxification at specialist addiction treatment centres, result in a high financial burden.

The aim of the current review is to provide an insight overview about the nutritional status of drug addicts, and the effect of medical nutrition treatment interference and nutrition education on recovery. It also emphasises the role of diet and dietitians as powerful supporters in the process of recovery from addiction.

DIET-RELATED COMPLICATIONS ARISING FROM ADDICTION

Dietary imbalances connected to good carbohydrates, healthy fats, amino acid and vitamins, can result in many medical problems; these include diabetes, heart disease and cognitive weakening (Shils et al., 2005). Psychological changes related to addiction occur due to imbalanced or low neurotransmitters in the brain, which is more aggravated by nutritional deficiencies and poor diet choices. These biochemical changes result in other complications related to diet, such as hypoglycaemia, allergies, adrenal weakness, and digestive disturbance (American Psychiatric Association (APA), 2000).

Hypoglycaemia

Hypoglycaemia is defined as low blood sugar (Stedman, 2005). Hypoglycaemia is considered as one of the most important problems from which recovering alcohol and drug addicts suffer (Schauss, 1981). Researchers found that there are certain diseases, such as liver diseases, that cause hypoglycaemia. However, most of the hypoglycaemic cases develop functional or reactive hypoglycaemia, which is caused by consuming certain types of food, containing highly refined sugar, and drinking alcohol (Sporer et al., 1992). Many recovering addicts have unreliable eating habits and consume diets high in sugar and processed carbohydrates. Hypoglycaemia happens progressively as addicts continue with bad eating habits and high levels of refined sugar, which makes the adrenal gland work intensely and results in adrenal exhaustion.

Adrenal Fatigue (Hypoadrenia)

Adrenal weakness is the disorder whereby the adrenal gland does not work at maximum capacity and is therefore incapable of making sufficient quantities of hormones. Drug and alcohol addicts also suffer from adrenal fatigue due to continuous demands on the glands to cope with the fall and rise of blood glucose quantities; this puts a burden on the adrenal gland.

Sensitivities and Allergies

Allergies are one of the problems that have been reported in recovering alcohol and drug addicts. A study reported that 56% of addicts had an allergy to environmental allergens. Ethanol, which is found in alcohol, was found to be the highest common allergens. The study result also shows that alcohol drinkers have an allergy to primary alcohol ingredients, such as sugars, grains and grapes, from which alcohol is made (Larson and Parker, 1987).

Digestive Disturbance

Alcohol and drug addiction affect the digestive system, therefore many addicts suffer from digestive problems; these include indigestion, poor appetite, diarrhoea and constipation. Alcohol, heroin, painkillers and caffeine consumption affect the soft inner lining of the intestines, and this prevents the absorption of minerals, amino acids and vitamins. This will prevent the brain from being nourished correctly (Dimitrijević et al., 2008).

COMMON NUTRITIONAL DEFICIENCIES FOUND IN ADDICTS

Studies have shown that recovering addicts have deficiencies in many important macro- and micro-nutrients; these involve changes in dietary habits and weight loss. Certain types of these nutritional deficiencies also occur due to alcohol and drug use or following a bad diet (Alves et al., 2011).

Carbohydrate Nutritional Deficiencies

Most addicts' diets are noted to be deficient in complex carbohydrates and usually they consume too many simple carbohydrates. This results in severe malnourishment as well digestion problems that lead to adrenal fatigue and hypoglycaemia (Gant and Lewis, 2002).

Nutritional Deficiencies in Amino Acid and Protein

Drugs and alcohol affect digestion and disturb the processing of amino acids. Drug addiction also affects the liver and small intestine, resulting in lower protein secretion. Stress and chemical imbalance found among recovering drug addicts increases the requirement for protein/amino acids above that normally needed. This is because non-essential amino acids might convert to essential amino acids; at the same time, the body acts to give the extra amino acids needs that result from the added disruption that comes from alcohol and drugs (Santolaria et al., 1995).

Nutritional Deficiencies in Fats

Many studies reported that drug addicts are found to be deficient in Omega-6 and Omega-3 fatty acids. Therefore adding these to the addiction recovery programme significantly speeds recovery (Rudin et al., 1987). Fatty acids are important as they give the body the raw materials for building the prostaglandins, which are important for recovery from addiction (Finnegan, 1989).

Nutritional Deficiencies in Vitamins and Minerals

Deficiency in vital minerals, such as zinc, calcium, magnesium, iron and potassium, in addition to the B-complex and C vitamins, are found to be common among drug and alcohol users (Marsano and McClain, 1989).

Zinc: The liver's extra stores of zinc are decreased in addicts due to over consumption of caffeine, sugar, alcohol, drugs and unbalanced meals. Zinc plays an important role in recovery by aiding a healthy immune system, assisting brain and liver function. Zinc also helps insulin do its job, and helps in food digestion (DesMaisons, 1998).

Calcium/Magnesium: Most alcohol and drug addicts have calcium deficiencies, which occurs as a result of insufficient calcium intake and poor diet. In addition, sugar, alcohol, caffeine, and other drugs cause the body to remove calcium. Caffeine has been shown to double the urinary excretion of calcium. Calcium is one of the most principal nutrients needed in sufficient amounts for the recovering addict. Magnesium is found to be poor in people consuming excessive doses of drugs, caffeine, sugar and alcohol (Finnegan and Gray, 1990).

Low calcium and magnesium levels are the main causal factors to the pain and muscular/nervous system problems that addicts and alcoholics face through the recovery and withdrawal stages (Viering et al., 2016).

Iron: Alcohol and drug users can be anaemic as the substances they used and bad eating behaviour can injure the liver, affect iron absorption and cause anaemia. Anaemic patients have symptoms such as depression, fatigue and headaches. Appropriate levels of iron can be achieved by consuming a diet with several added helpful nutrients; these include Omega-3 fatty acids, copper, B-complex and C vitamins. The diet should also be high in complete protein to effectively treat anaemia (Rodak, 2007).

Potassium: Recovering drug and alcohol users have a potassium deficiency due to the high consumption of sugar, salt, use of alcohol, caffeine and bad dietary behaviour. Potassium deficiency symptoms include fatigue, muscle cramps, constipation, and weakness, and mainly results in high blood pressure. Potassium deficiency also can reduce liver and adrenal liver function (Finnegan and Gray, 1990).

Vitamin C: Vitamin C is considered to be a strong antioxidant, which has an essential effect on brain function by accelerating detoxification; it also acts as a scavenger for free radicals. During the drug and alcohol addiction recovery period, the body requires more Vitamin C; this is found to be one of the very important components in curing addiction. Vitamin C has an essential role in rebuilding the immune system and liver function, and helps in the recovery from adrenal fatigue and brain chemicals activation. This occurs by helping the change of tryptophan amino acid to serotonin (Nazrul et al., 2001).

B-Complex Vitamins: B vitamins play many vital roles in the body. They improve the function of the nervous and immune system, muscle tone and stimulate cell growth. B vitamins are required in carbohydrates catabolism to supply the body with energy. All the B-complex vitamins are essential in the recovery from addiction as deficiencies in the B vitamins, particularly niacin and thiamine, result in various psychological symptoms; these include confusion, depression, hyperactivity and paranoia. Niacin is important for tryptophan to be converted to serotonin that controls emotions and mood. Pantothenic acid is a vitamin that aids in the reduction of stress. Thiamine is the B vitamin that is essential in carbohydrate metabolism (Velisek, 2013).

Nutritional Education and Counselling

Studies reported that nutrition counselling and education is considered as one of the most important factors in the treatment of addiction and recovery programmes, which improve the outcomes of the treatment (Grant et al., 2004).

In a study undertaken by Cowan and Devine (2008), he reported that opiate addicts show unhealthy eating behaviours due to a lack of nutritional knowledge, food preparation skills, and environment. Another study carried out by Hodgkins (2003) showed that suitable nutrition education and physical activity are very effective for substance abusers in their withdrawal from opiates.

It is important to include nutrition intervention and education into addiction recovery programmes as they are both encouragingly related to positive outcomes in addiction curing programme.

METHODOLOGY

Searching for the Literature

Aimed search

The literature was gained through searching library databases (MEDLINE/PubMed, PsycINFO, Agricola and EMBASE). It is a summary of both conceptual and empirically published literature on drug addiction and nutrition intervention.

Search strategy

The keywords used in searching were addiction, nutrition, therapy, recovery, detoxification, intervention, and dietitian. The reference lists from reports and published studies were searched for more sources. A number of electronic journals specialising in addiction and diet were searched. The overall search method showed information from consultation papers and discussion papers, which were examined to abstract evidence related to the present literature review objectives.

Topics of interest

Intervention of medical nutrition therapy in managing and curing addiction.

Evaluating the evidence

The final selection of articles was carried out by a comprehensive review of each article by two people to prevent errors and omissions.

DISCUSSION, CONCLUSIONS AND IMPLICATIONS

One of the most important side effects among recovering addicts is appetite suppression, as eating might be of lesser importance. Furthermore, fasting and skipping meals may be used as a way of increasing the effect of alcohol or drugs. Frequently, food is consumed by means of quick snacks, which are usually high in simple carbohydrates and fat and low in protein (Emerson et al., 2009).

Alcohol has very low or no nutrient content, while at the same time is high in calories giving the effect of satiety; this will lead to an unhealthy weight (Grotzkyj-Giorgi, 2009).

One of the digestive disorders that are noticed among addicts is digestive tract damage. This, consequently, will lead to low appetite, constipation, indigestion, diarrhoea, damage to the liver, and a weakening ability to retain nutrients. This then decreases the action of vitamins, reducing the body's ability to decompose food in order to produce energy. Damage to the intestines will also result in poor nutrient absorption and utilisation, together with increased nutrient losses; this will result in lean tissues and a suppressed immune system (American Dietetic Association, 1990).

A process of nutritional care is needed for addicts, and an assessment of their nutritional status is significant at the detoxification stage. The introduction of nutrient dense meals and rich food is significant to repair damaged tissues and organs. Resuming normal eating habits should be encouraged, in combination with nutrition education in a group setting.

Carbohydrate-metabolism health problems caused by addiction, including hypoglycaemia and adrenal fatigue, can be controlled effectively with the diet by decreasing simple carbohydrates and substituting them with more complex carbohydrates in the form of nuts, whole grains, seeds and vegetables. Blood sugar should be stabilising during the day by taking meals at regular intervals, and reducing or eliminating caffeine and junk food that lack nutrients (Fishbein and Pease, 1988).

Proteins and amino acids are building blocks of the brain and the body during recovery. They are particularly found in poultry, meat, milk, fish, eggs, nuts, legumes and cheese, in addition to lesser quantities of vegetables and complex carbohydrates. The human body does not have the ability to store amino acids in the same way as carbohydrates or fat; therefore it requires a daily source of amino acids for the formation of new proteins. Many studies reported and confirmed the efficiency of using small definite amino acids “precursors” to raise the main neurotransmitters, thus removing anxiety, depression and desires for alcohol, drugs and food (Ross, 1999).

Addicted people were found to be deficient in Omega-3 fatty acids. Consequently the diet for addicts during the recovery period should be augmented with flax seed oil and/or high quality fish oils. The diet should also be free from synthetic and hydrogenated products such as margarine. Unsaturated and high-quality fats are essential in an addict’s diet. The greatest sources of dietary fat for recovering addicts are various fish, such as salmon, sardines and tuna, unsaturated oils, such as extra virgin olive oil, natural whole grains, seeds, meat and dairy should also be consumed (Beasley and Knightly, 1994). Many addiction recovery programmes recommend mineral and vitamin supplementation.

CONCLUSIONS

Drug addiction is a lifestyle disease, which can be managed successfully in the same way as other chronic diseases. Research in addiction science and the treatment of substance misuse has led to the development of evidence-based interventions that help in managing and curing this condition.

Although there are many social, spiritual and psychological interventions used in the treatment of addiction, nutritional intervention is neglected.

It is progressively being acknowledged that there is a strong relationship between poor nutrition and problematic substance use.

Learning about good food and special diet recommendations is significant in the curing and recovery process of addiction, and it is influential in obtaining long-term success.

To fight drug and alcohol, self-discipline, a suitable and individual diet, nutritional

education about abuse and hypoglycaemia must be part of the programme.

It is important to deliver an antioxidant treatment to drug addicts and consequently help them to return to their usual lives.

In conclusion, in all types of addiction, nutrition should be well thought out as an influential supporter in the recovery process, especially during the early stages of detoxification. A different diet rich in good carbohydrates, complete good proteins, fresh vegetables and fruit, essential fats (nuts, oily fish), and a sufficient amount of water should be considered and utilised as an instrument to aid recovery.

An assessment of the nutritional state of addicts is often done in parallel to their medical treatment.

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