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Non-Alcoholic Fatty Liver Disease (NAFLD) and Role of Poor Nutrition in Liver Diseases

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ABSTRACT

NAFLD is supposed to be the most evident Chronic Liver Disorder (CLD) worldwide. NAFLD could be due to obesity, diabetic and cardiac metabolic syndrome. Fat accumulation in the liver enhances the chances of NAFLD. Till today, there is no potent pharmacotherapeutic treatment available for NAFLD, but the lifestyle changes such as physically activity, dietary behaviors including the consumption of safe and healthy foods, etc. can reduce the chances of NAFLD. Some specific nutrients and dietary behavioral modifications pose positive impact on managing NAFLD. Unhealthy diets including higher levels of calories, saturated fatty acids (SFA), trans-fats and Mega Trans, simple sugars and animal proteins and reduced levels of micro-nutrients, fibers and polyunsaturated fatty acids have vital role towards its outbreak and spread. Currently, low caloric and plant-based diets, with physical activity has the potential to reduce the body weight and it could be an effective intervention for NAFLD treatment.

Keywords: Chronic Liver Disorder (CLD), cardiac metabolic syndrome, Mega Trans, NAFLD

Introduction

NAFLD is characterized by more than 5% accumulation of fat in the liver cells/ hepatocytes. Presently, with 20% to 30% of its prevalence is in high income populations. The principal cause of different chronic liver diseases in most countries of the world is NAFLD. Diabetic and obese patients are on the verge of getting NADLD. Dietary behavioural changes and exercise may impact positively in managing NAFLD and its complications. As a primary tactic, nutritional intervention looks simple, cost-friendly and safe; however, continuing success rates have been unsatisfactory due to some limitations including shortage of healthy food, scarcity, sedentary environment and the socio-cultural behaviors [1]. Diet could be the problem or the solution of NAFLD. Basically, the improvement of histological features in NAFLD is the association of dietary modification. Nutrient based modifications appear to be less efficient on NAFLD as compared to the caloric modifications as they also focus on weight management and histological improvements. [2].

Epidemiology of NAFLD

Emerging health priorities worldwide are liver diseases. Globalized economy socio cultural status is associated with fatty liver that may be alcoholic fatty liver disease (ALD) or nonalcoholic fatty liver disease (NAFLD). Sustained sedentary lifestyle behavior, caloric dense dietary consumption and increased amount of alcoholic intake leads to the development of fatty liver diseases. Adverse health impacts of fatty liver include liver fibrosis and non-liver impacts including CVDs, tumor, neurological abnormalities, accidents, etc. [3].

Nutrition and NAFLD

Good Nutrition can reduce the chances of NAFLD occurrence and even strict compliance to the best diet plan can reverse the NAFLD. In this regard, plant-based bioactive diets can be helpful as they are known to possess several therapeutic properties [4,5]. Persons can lead to healthy and disease-free life by following the below mentioned guidelines.

1. Carbohydrate intake and NAFLD

The control over total caloric intake is very crucial for preventing the metabolic complications induced by raised energy intake, Diet induced health problems are associated with higher intake of sugars. Prolonged consumption of high-carbohydrate diet (HCD) results in hepatic abnormalities. HCD, in comparison to the natural diet, causes many metabolic abnormalities such as insulin resistance, NAFLD, dyslipidemia, adiposity, etc. In the experimental setup, increased oxidative stress, metabolic disorders and NAFLD were observed in *G. gerbillus*, a rodent, resembling to human body's response to diet with high HCD consumption [6].

2. Dietary fat intake and NAFLD

The most common form of liver diseases is NAFLD, which is associated with excess fat deposition in the liver. Generally, hepatic fat accumulation is increased by hypercaloric diets whereas reduced by hypocaloric diets. Additionally, consumption of unsaturated fatty acids in moderation seems protective for fatty liver development while, contrary to this, saturated fatty acids consumption appears to put at risk of hepatic steatosis. Steatosis and lessened efficiency of respiratory transport chain are caused by SFA intake. Composition of mitochondrial membranes are affected by intake of SFA accelerated the development of NAFLD, causing continuous depreciation of health [7].

3. Protein intake and NAFLD

There is not a well-defined impact of protein intake in causing NAFLD as per carbohydrates and fats. However, the dietary behaviors of the patients with NAFLD should have raised levels of protein intake [8].

4. Dietary fibers intake and NAFLD

Fermentable dietary fiber reduces the gain in the body weight, cholesterol, liver fat and triglyceride profile along with altered development of SCFAs. Initially, development of SCFAs is ceased by high-fat diet but, the propionic and acetic acids are produced again [9]. Generally, it is considered that glycaemia and insulin sensitivity in both diabetic or healthy person can be improved with the consumption of soluble fibers [10].

Conclusion

NAFLD is the fatty accumulation in the liver more than the normal range of hepatic fat under the conditions including no alcoholic consumption and drug intake. No proper medical treatment is there for it but the lifestyle changes including dietary modifications, physical activities and behavioral interventions can be productive to minimize the resulting complications. The summarized overview of dietary prospective indicates that the diets with low carbohydrates, low fat contents, high proteins and high dietary fibers is considered appropriate and beneficial for managing NAFLD and other health complications originating due to it.

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