

The Relation Between Dietary Pattern and Nutritional Status with Chronic Diseases and Covid-19- A Case Report

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Abstract

Covid-19 was considered as a global health-related challenge within the past years which affect individual's quality of life in several aspects. It has been suggested that health status including nutritional status, can be one of the most crucial indicators for Covid-19 infection. It seems that poor dietary pattern background and nutritional deficiencies may increase the risk of covid-19 infection. The purpose of this case-report, was to evaluate the relation between dietary pattern and nutritional status with Covid-19 possibility in 64 years old women infected with Covid-19. Before the study, all the health-related indicators were assessed.

The results from this study have indicated that previous nutritional status can be a possible cause for immune system weakness and dysfunction, which may be considered as a leading cause of Covid-19 infection. Planning and recruiting nutritional strategies including high quality diet with variety of food groups can provide nutritional requirements. Moreover, supplementation can prescribe according to patients' nutritional deficiencies.

Keywords: Covid-19, nutrition, nutritional support, supplementation.

Introduction

Within the past years, covid-19 pandemic has affected countries all around the world and each day, a large number of infected patients lose their lives due to this virus. This pandemic has affected individual's quality of life in several aspects including social, emotional, psychological, physical and nutritional area.

Sedentary life style and poor nutrition due to lock down and economic situation may increase the risk of chronic diseases including diabetes which may increase the vulnerability for infectious diseases including covid-19. Moreover, emotional and psychological-based disorders may be strongly linked with nutrition, known as eating disorders. Quarantine and lockdown may inversely affect emotional and mood which may ultimately cause eating disorders including bulimia nervosa and anorexia nervosa. All of the above-mentioned factors may put immune system prone to any health-related complication caused by nutrient deficiency due to poor nutrition and unhealthy food choices.

Restricted and low-quality dietary pattern, unbalanced diet and

food selectiveness may restrict dietary an essential nutrients intake. It seems that nutrition may be an effective factor in covid-19 infection risk as it affects immune function and its post recovery time.

The purpose of this case report was to assess and examine the relation between nutritional status and dietary pattern with the risk of covid-19 and hospitalization.

Material and methods

A 64 years old women without any experience of chronic disease or health related complication, was diagnosed with covid-19 according to Polymerase Chain Reaction time (PCR) test and mRNA extraction. She was hospitalized due to fever and respiratory tract infection.

Clinical assessments

Dietary pattern, dietary intake and nutrient status was assessed via food frequency questionnaire, food recall and biochemical laboratory methods, respectively. After biochemical assessment, she was diagnosed with hypocalcemia and calcium was prescribed both in

oral and injectable forms with the maximum recommended daily dosage along with other medications. The results from dietary assessments indicated that her dietary intake was not sufficient from dairy product, fresh fruits and vegetables which seems to be a key cause for immune system weakness and dysfunction. Supplementation was immediately started for calcium and other two divalent Minerals. The calcium status was assessed every day, but no significant increase was shown in first days of hospitalization. Poor appetite and decrease in sense of taste and olfactory, can be considered as covid-19 side effects. As a result, she did not tend to consume nutritious dietary sources, refused food intake and her micronutrients intakes was mostly via supplementation, although she was gradually offered colorful dietary sources in small amounts and she was persuaded to consume small and frequent meals.

Nutritional support

Covid-19 infection and its related respiratory damage, muscular weakness and poor nutritional status, may result increase in respiratory rehabilitation and physiotherapy need while hospitalization. Sarcopenia, excessive weight loss and systemic weakness were increased due to increase in hospitalization time and insufficient dietary and calorie intake. After discharge from the hospital, the first nutritional strategy was to increase calorie intake via consuming low volume and calorie dense foods including protein powder, formulas and meat broth extract. For enhancing appetite, some natural appetizers including additives were added to foods in order to increase food taste as appetite stimulator.

Nutritional supplementation during recovery

Nutritional supplementation with calcium, zinc, selenium and magnesium was done in order to support immune system function and increase nutritional supply. Fresh fruits were gradually added to dietary plan as natural juices and their fiber content was gradually increased. Vegetables were offered in semi-cooked forms. As there was an experience for low diary intake, dairy products were added gradually and was first presented as low-fat probiotic yogurt in small amounts. There was an increase in serum calcium level from 7.9 mg/dl to 9.5 mg/dl after the recruited nutritional support.

Discussion and conclusion

In conclusion, healthy nutrition and dietary pattern, is a key component of healthy life style. Nutritional status is known as key element for most of the non-communicable disease (NCD) including diabetes type 2, cardiovascular disease and metabolic syndrome. Although during this pandemic, it seems that nutrition may affect the chance of covid-19 as it may affect immune system health and function, so poor nutritional status may increase both NCD and infectious disease.

Micronutrient's deficiencies including zinc, magnesium, calcium and vitamin D is related to immune system dysfunction and increase susceptibility for covid-19, while a balanced-diet, provides all the essential nutrient along with energy and other macro nutrients which may lead to better immune system function.

The results from this study have suggested that low quality nutrition and limited dietary intake may lead to poor nutritional status which is associated with higher risk of covid-19, more need for hospitalization and rehabilitation care during hospitalization and recovery period.

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