A Review Article: Control Caloric Intake in Autoimmune Survivors

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Keywords: Autoimmunity, Nutrition, Calory intake, Macronutrients, Lupus nutrition

Abstract: Lupus or autoimmune disease is a condition in which a person's immune system does not work properly. The immune system, which should protect the body from viruses and bacteria attacks, attacks the tissues and the body itself. This literature review aims to determine the importance of maintaining body calories or food intake for autoimmune patients. The articles used are in accordance with the keyword's autoimmunity and calorie intake, autoimmunity and nutrition, calorie intake, macronutrients, lupus nutrition. There were 10 articles/journals which were analyzed through an analysis of the objectives, suitability of the material, the methods used, the results of each article, and the limitations faced. Maintaining the intake of calories and food in the body is very important for people with autoimmune. Vegetables and fruits high in antioxidants that boost the immune system, and foods high in omega-3. This is because it helps reduce inflammation and boost immunity from autoimmune diseases. Therefore, autoimmune diseases are not new or discovered. Although there is currently no cure, people with autoimmune diseases can improve their condition by adopting a healthy lifestyle by controlling the intake of healthy and balanced foods as needed. It is possible to reduce the possible causes and symptoms.

1 INTRODUCTION

Angka The incidence of non-communicable diseases (NCD), including lupus, continues to increase every year. Lupus or autoimmune disease is a condition in which a person's immune system loses the ability to distinguish foreign substances (non-self) from cells and body tissues (self). This condition triggers the immune system to attack healthy cells, tissues, and organs. This disease is also a multisystem disease with many clinical manifestations of sufferers, who experience different symptoms depending on which organs are attacked by the body's antibodies. The most common clinical manifestations are rash, arthritis, and weakness. In more severe cases, SLE can cause nephritis, neurological problems, anemia, and thrombocytopenia (Kementerian Kesehatan RI, 2018).

The World Health Organization notes that the number of people with lupus worldwide has now reached 5 million, with more than 100,000 new cases discovered every year. According to data from the Online Hospital Information System (SIRS) in 2016, 2,166 inpatients were diagnosed with lupus. This trend has more than doubled since 2014, when 1,169 new cases were detected. The high mortality rate due

to lupus needs special attention because 25% or around 550 people died from lupus in 2016.

Most people with lupus are women, with a female-to-male ratio of 10:1. SLE affects women of childbearing age, with a peak incidence between the ages of 15 and 40, but lupus can also affect men, children, and adolescents. The exact number of SLE sufferers in Indonesia is unknown, but the number of SLE sufferers in the United States is estimated at 1,500,000 (Suzan, 2018).

It is well known that nutrition plays an important role not only in the general development and well-being of a person, but also in the immunological status and susceptibility or protection from diseases, which were previously thought to cause susceptibility to infectious diseases. However, recent trends suggest that diet plays a role in susceptibility to autoimmune diseases and allergies. The effect of food on immune status can be read

from the total calorie content and the number of individual food components. Carbohydrates, proteins, lipids, various trace elements, hormones and vitamins are consumed every day. Countries in northern latitudes with low sun exposure report a high prevalence of autoimmune diseases due to vitamin D deficiency. Increased vitamin D consumption has been reported to reduce the risk of SLE, inflammatory bowel disease, multiple sclerosis, and other autoimmune diseases (Wakhlu and Agarwal, 2013).

Flavonoids and trace elements such as selenium, iron and zinc have been reported to play important roles in T lymphocyte development, proliferation and function. Insufficient nutritional intake increases the risk of predisposing to autoimmunity or becoming more active. Probiotics are live microorganisms that positively alter the intestinal flora and have an immunomodulatory effect on the host. Its role in human IBD is well established, but is not known in other autoimmune diseases. Currently, there is limited evidence on the immunomodulatory effects of nutrients in various human autoimmune diseases. However, laboratory evidence and experimental animal models suggest that various nutrients and total caloric intake play promising roles in the immune system. Discussion and evaluation of the effects of different nutrients on Dietary advice is simple, important, and plays an important role in the management of various autoimmune diseases (Wakhlu and Agarwal, 2013).

2 METHODS

The research method uses an electronic-based journal literature review method that is sourced from the Google Scholar Database, PubMed, Academia Edu. The articles used are in accordance with the keywords, namely autoimmune and calorie intake, autoimmune and nutrition, calorie intake, macronutrients, nutrition lupus. There are 10 articles/journals which are analyzed through analysis of objectives, suitability of topics, methods used, results of each article, and limitations that occur.

3 RESULTS

No	Research Article Title	Autor and Year of Publication	Research Objectives or Questions	Research Sample	Research Variable	Methods	Research Findings (Results)
1.	Hubungan Asupan Makanan dan Status Gizi Terhadap Kualitas Hidup Penderita Lupus Eritematosus Sistemik	Miranty (2015)	1. Knowing the relationship between intake of macronutrients (carbohydrates, fats, proteins) on the quality of life of patients with systemic lupus erythematosus. 2. Knowing the intake of micronutrients (vitamin A, vitamin C, vitamin E, vitamin B6, vitamin D, iron, and selenium) on the quality of life of patients with systemic lupus erythematosus. 3. Knowing the relationship between nutritional status and	Simple random sampling on 30 women of productive age who live in Jogjakarta	Independent variables: Food Intake and Nutritional Status Dependent variable: Quality of Life of Patients with Systemic Lupus Erythematosus	Observational research method with cross sectional design.	The results of bivariate analysis showed that there was a relationship between food intake and quality of life for patients with systemic lupus erythematosus ($p<0.05$) and there was a relationship between nutritional status and quality of life for patients with systemic lupus erythematosus (0.05).

			life status of patients with systemic lupus erythematosus.				
2.	Dietary intake and nutritional status in patients with systemic lupus erythematosus	Pocovi-Gerardino et al. (2018)	To assess diet intake and nutritional status in SLE patients	Study sample of 92 patients with SLE in Mexico.	Independent variable: diet intake and nutritional status Dependent variable: SLE activity	Method with cross-sectional study	Spanish SLE patients have an unbalanced diet characterized by low carbohydrate/fiber and high protein/fat intake. Significant deficiencies seen in micronutrients income. Diet counseling to improve nutrition will therefore be recommended in management from SLE.
3.	Pengaruh Bee Venom Acupuncture (BVA) terhadap penyakit Neuropatik dan Autoimun	Ningsih et al. (2019)	To evaluate the therapeutic effect of BVA on neuropathic and autoimmune diseases based on BVA content in honey-producing bees.	Interviews and observations to honey bee farming companies in Majasem village, Karyamulya sub-district, Cirebon district, West Java.	Independent variable: BVA Dependent variable: neuropathic and autoimmune	With an ethnozoological approach, with interviews, observations, and literature studies on the effects of BVA.	Bee venom acupuncture (BVA) has been reported to have a strong analgesic effect, which is known to treat various diseases such as solid tumors, neuropathy, mechanical hyperalgesia, chronic low back pain (CLBP), autoimmune disorders, rheumatoid arthritis, lupus, scleroderma and other related neuropathic and autoimmune diseases.

4.	Dietary Omega Polyunsaturated Fatty Acid Intake and Patient-Reported Outcomes in Systemic Lupus Erythematosus: The Michigan Lupus Epidemiology and Surveillance Program	Charoenwoodhipong et al. (2020)	The importance of nutritional management in patients diagnosed with SLE with malnutrition and bronchopneumonia.	The study sample was patients with autoimmune disease in America.	Independent variable: Dietary Omega Polyunsaturated Fatty Acid Intake Dependent variable: SLE activity	This study was based on a population-based Michigan Lupus Epidemiology and Surveillance Cohort.	A higher dietary intake of n-3 fatty acids and a lower n-6: n-3 ratio correlated well with patient reports of SLE, particularly self-reported lupus activity and sleep quality.
5.	Efek Imunomodulator Jus Herbal Kombinasi Bawang Putih, Jahe Merah, Jeruk Nipis, Cuka Apel dan Madu Terhadap Mencit Putih Jantan	Meisyayati et al. (2016)	The purpose of this study was to determine the immunomodulatory effect of a combination of garlic, red ginger, lime, apple cider vinegar and honey herbal juices at various doses.	Using the research sample, 20 male white mice were divided into 5 groups.	ndependent variable: Immunomodulator of herbal juice combination of garlic, red ginger, lime, apple cider vinegar and honey Bound variable: to carbon clearance	Carbon cleans up research method.	Administration of a combination of garlic, red ginger, lime, apple cider vinegar and honey herbal juice in white male mice could significantly increase the phagocytic ability of immune cells compared to negative controls and could also speed up the clearance time of carbon that acts as an antigen so that it proved to be effective as an immunomodulator. . These effects have occurred starting at a dose of 2 ml/kg.
6.	Vitamin D Defiency in Patients with Systemic Lupus Erythematosus	Attar and Siddiqui (2013)	1.To know the relationship between SLE and 25(OH)D.7-9 2. Relationship between 25(OH)D levels and SLE disease activity, skin manifestations, lupus nephritis (LN), anti-	Simple random sampling of SLE patients, who were diagnosed and followed up at King	Variabel bebas: antara kadar 25(OH)D Variabel terikat: aktivitas penyakit SLE	This research method is a retrospective inspection cohort study and continued with the Bonferroni	In this study, the finding that 25(OH)D deficiency was greater in patients with active SLE than in patients with inactive disease was thought to

			double-stranded DNA autoantibodies (anti-dsDNA), complement, glucocorticoid exposure, and use of antimalarial agents and azathioprine (AZA).	Abdulaziz University Hospital (KAUH), Jeddah, from January 2007 to November 2010.		correction test.	be due to the underlying inflammatory process in SLE patients potentially increasing vitamin D catabolism. 4 However, no correlation was detected between 25 deficiency (OH)D and active disease were evaluated by the SLEDAI-2K score.
7.	Relación Entre El ConsumO De Ácidos Grasos Poliinsaturados Omega 3 y la Actividad Inflamatoria Del Lupus Eritematoso Sistémico en Pacientes De La Ciudad De Mar Del Plata	Vivero et al. (2018)	To determine the relationship between consumption of food sources of n-3 PUFA with inflammatory activity of SLE.	Using a non-probabilistic study sample consisting of 27 patients aged between 21 and 78 years (38.40 ± 15.37), 92.6% women, assisted in the Private Community Hospital of the city of Mar del Plata	Independent variable: consumption of food sources of n-3 PUFA Bound variable: inflammatory activity of SLE	The research method was carried out using a questionnaire on the frequency of consumption of food sources of n-3 PUFA.	LES activity levels lower than 5 were more frequent among those who reported consuming canned tuna (p = 0.04), a source of long-chain n-3 PUFAs, most frequently in the 3 months prior to the survey, and among those who consumed walnuts (p = 0.04), source of -linolenic acid, more than 1 time/week.
8.	Kozhikode Criteria for Diagnosing Systemic Lupus Erythematosus as a Hematological Disorder.	Arathi et al. (2016)	To diagnose SLE and develop new criteria called the Kozhikode criteria. To validate the same and to look for the relationship of diet and lifestyle with the disease.	Using a study sample of patients evaluated at a tertiary center in North Kerala	-	This research method uses the criteria of the American College of Rheumatology (ACR).	No group of patients met the ACR criteria alone but did not meet the Kozhikode criteria. new criteria Observations prove that early diagnosis is not possible with the ACR criteria but is possible with the Kozhikode criteria. This

							study highlights the inadequacy of the ACR criteria in diagnosing SLE. If these patients are categorically diagnosed as SLE, they can receive definitive therapy.
9.	Relationship of Axsess Weight with Clinical Activity and Diatary Intake Deficiencies in Systemic Lupus Erythematus Patients	Meza-Meza et al. (2019)	To assess nutritional status and food intake in SLE patients.	Using a study sample of female SLE patients in Mexico-mestizo.	Independent variable: Vitamin D intake Dependent variable: Serum 25(OH)D level	By cross-sectional study method.	In SLE patients, being overweight is associated with increased clinical activity and a deficiency in ingested essential nutrients.
10.	Korelasi antara Asupan Vitamin D dengan Kadar 25(OH)D Serum pada Pasien Lupus Eritomatus Sistemik Perempuan Dewasa	Suzan (2018)	To determine the correlation between vitamin D intake and serum 25(OH)D levels in adult female systemic lupus erythematosus patients.	The research sample was conducted on 36 adults female SLE patients from the Rheumatology Polyclinic at Dr. Hospital. Cipto Mangunkusumo.	Independent variable: Vitamin D intake Dependent variable: Serum 25(OH)D level	The research method uses cross-sectional.	There was a moderate positive correlation between vitamin D intake and serum 25(OH)D levels in adult female SLE patients ($r = 0.52$; $P < 0.01$).

4 DISCUSSIONS

From the 10 literature reviews of journals in the table, it shows that for autoimmune survivors it is very important to maintain calorie or food intake in the body. Because the condition of the body of an autoimmune survivor is different from the condition of a healthy person's body. This means that it is necessary to control calories by sorting out which foods are good and not good for consumption by autoimmune survivors.

From the journals above, it is known that there is a relationship between the quality of life of autoimmune survivors (SLE) on the intake of macro and micro nutritional foods and the relationship with nutritional status on the life status of autoimmune patients (SLE).

There is dietary counseling recommended in the management of SLE that still pays attention to diet so that there is no significant nutritional deficiency.

Then it was also known that honey or Bee Venom Acupuncture (BVA) has a a strong analgesic that can help treat autoimmune disorders (SLE). Then a higher food intake of n-3 fatty acids (omega-3) and a lower n-6: n-3 ratio is good for autoimmune (SLE) survivors.

Then giving juice to male white mice experiment with a combination of herbal juices between red ginger, lime, honey, garlic and apple cider vinegar, the results can significantly increase the phagocytic ability of immune cells and can clean carbon quickly as an antigen so that it is proven to be effective as an antigen. immunomodulator with a given dose of 2 ml/kgBW. Furthermore, it is also known that there is a relationship between Vitamin D / 25(OH)D deficiency in active SLE patients which has the potential to increase Vitamin D catabolism. However, no correlation was detected between active SLE disease and 25(OH)D deficiency which was evaluated by the SLEDAI score - 2K. Then in another journal also discussed that in adult female systemic SLE patients it was found that there was a moderate positive correlation between vitamin D intake and serum 25(OH) levels. Then it was also known that for SLE patients who consumed canned tuna ($p = 0.04$), a source of long-chain n-3 PUFAs (3 months before the survey) and for SLE patients who consumed walnuts ($p = 0.04$), a source of linoleic acid more than once per week showed an SLE activity level lower than 5. Then it was also known that in SLE sand the presence of clinical activity and deficiency in some essential nutrients to something eaten was associated with overweight in SLE patients.

5 CONCLUSIONS

So, autoimmune disease is not a new disease or newly discovered. Although there is currently no cure, autoimmune survivors can reduce the potential or symptoms that can worsen the situation, namely by adopting a healthy lifestyle by controlling healthy and balanced diet according to their needs. Increasing the body's immunity by consuming certain foods can be an alternative to keep the body's immunity or immunity awake.

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