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The Analysis of Eating Habits of Hyperuricemia Sufferers in Padang City

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ABSTRACT

Hyperuricemia is a condition when uric acid levels in the blood are higher than normal. It can lead to several diseases, like gout. The data from the Health Office of Padang City in 2013-2015 show that gout is included in the category of 10 most diseases in Padang City. The typical foods of West Sumatera contain high-protein. This may correlate with the increase in the number of hyperuricemia sufferers in Padang City, West Sumatera. The aim of this study is to know the eating habits of hyperuricemia sufferers in Padang City. This research method was explorative-descriptive using a survey conducted on respondents of hyperuricemia sufferers. The respondents surveyed were thirty-seven people, randomly assigned to the patients of health facilities in Padang City. The results indicated that hyperuricemia sufferers are under and above 40 years old. Animal source foods stated by respondents that can increase uric acid were *tumpang*, *cancang*, and beef liver. Meanwhile, plant source foods stated by respondents that can increase uric acid were legumes (*melinjo/emping*, *tauco*, dan *gado-gado/lotek/pical*), leafy greens (*cassava leaf*, *spinach*, and *kale*) and fruits (*durian*, *jack fruit*, and *banana*). *Ginger*, *red ginger*, and *garlic* are believed by the respondents to reduce gout.

1. INTRODUCTION

1.1. Research Background

West Sumatra is one of the provinces in Indonesia that have typical food both in fresh and processed foods. However, the people also known as Padang people has health problems, one of which is gout or hyperuricemia. Gout or hyperuricemia is a metabolic disease caused by consuming too much high-protein food. High protein foods, in particular, have high purine content. Purines are consist of adenine, guanine, hypoxanthine, and xanthine. Widely, purines in food are the main constituents of nucleic acids, nucleotides and free bases [1].

The 2013 Basic Health Research (RISKESDAS) from Ministry of Health said that hyperuricemia in Indonesia was 11.9% based on health workers and 24.7% based on diagnosis or symptoms. The prevalence of disease in West Sumatra in 2013 was 12.7% based on the diagnosis of health workers and 21.8% based on diagnosis or symptoms. The prevalence of hyperuricemia in Padang city in 2013 was 11.6% based on diagnosis and symptoms and 6.6% based on the diagnosis of health workers. The data from District Level Health Office of

Padang in 2013-2015 show that hyperuricemia is included in the category of 10 most diseases in Padang City.

Typical West Sumatra food generally contains high protein and affects the increase consumption of purines. This cause uric acid levels in the blood which will correlate with an increase in the number of hyperuricemia sufferers in West Sumatra. Although the new postulate states that high protein foods play an important role increase hyperuricemia, data that show these linkages are still limited [2]. Nutritional therapy suggests that the amount of consumption of foods containing purine should be lower than 400 mg per day [3].

Therefore, the Padang people should have knowledge about the types of food that can affect the symptoms of hyperuricemia. Currently, there is no data on the meal pattern of hyperuricemia sufferers, especially in West Sumatra. The aim of this study is to know the eating habits of hyperuricemia sufferers in Padang City.

1.2. Literature Review

Uric acid is the final metabolic product of purines in the body. Gout is a disease associated with high levels of uric acid in the blood. Based on research mentioning the limit of uric acid

saturation in serum in men 7.0 mg/dl and women 6.0 mg/dl if it exceeds the limit, it is called hyperuricemia. Hyperuricemia is metabolic disorders such as diabetes mellitus, hypertriglyceridemia, obesity, metabolic syndrome, and hypothyroidism. Obesity increases the metabolism of adenine nucleotides, thereby facilitating the buildup of crystals [4].

Increased levels of uric acid in the plasma are caused by increased uric acid production or decreased uric acid expenditure. If uric acid production increases, there will be an increase in uric acid, hyperuricemia, and uric acid expenditure through urine increases. This increase can be caused by high consumption of food containing purines or increased synthesis of purines in the body [5].

Hypoxanthine, AMP, GMP, IMP, and adenine increases plasma uric acid levels in rats after purine base treat [6]. Urine acid increases if people consume all types of purines except for guanine. Based on the purine content, food ingredients can consist of three groups: Group 1, namely food containing high purines with the content of 100-1000 mg of purine in 100 g of material; group 2, namely food containing moderate purines containing 9-100 mg of purine in 100 g of the ingredient; group 3, namely food containing low purines [7].

1.3. Research Objective

This study aims to The aim of this study is to know the eating habits of hyperuricemia sufferers in Padang City. (i.e. animal source, plant source, vegetables, fruits and herbal) for knowing the source foods stated by respondents that can increase uric acid.

2. MATERIALS AND METHODS

2.1. Participant and Study Design

The survey of eating habits of hyperuricemia sufferers was randomly assigned to the patients of health facilities in Padang City, West Sumatera. This research methods was explorative-descriptive using a survey from June to August 2018. The number of respondents with gout disorder was 37 people, consist of 13 male and 14 female. The number of respondents with age above 40 years old is 29 people and respondents under 40 years old is 8 people.

2.2. Assesment of Dietary Intake

The data consist of biodata, the eating habits of respondents before and after sickness, the food that according to sufferers increases uric acid levels in the blood, and food according to respondents if consumed frequently will reduce the pain.

3. RESULT AND DISCUSSION

3.1. Age of Respondent

The number of respondents with gout disorder was 37 people, consist of 13 male and 14 female. The number of respondents with age above 40 years old is 29 people and respondents under 40 years old is 8 people. The majority of respondents were from the age group above 40 years old, which was 78.38% (Figure 1).

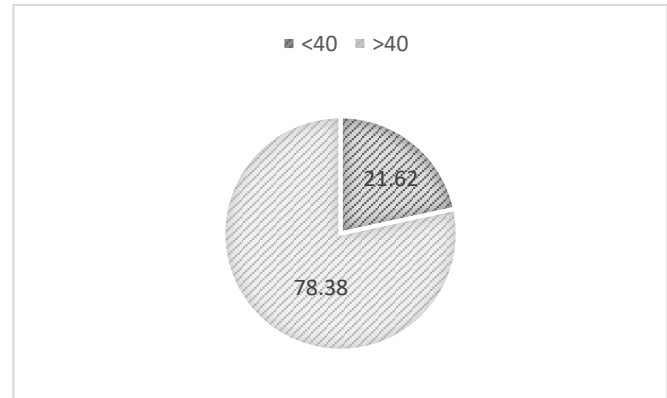


Fig. 1. Distribution of age of Respondents

3.2. Age of Hyperuricemia

The age of respondents were first attacked by hyperuricemia varied, ranging in age from 16 years to 73 years. But many respondents did not know when they started getting hyperuricemia. Only 17 people knew when they first attacked by hyperuricemia.

Hyperuricemia is a degenerative disease that commonly occurs in elderly people [8]. At present, hyperuricemia has begun to suffer in the productive age, under the age of 40 years. This is a new phenomenon that explains that degenerative diseases are no longer identical to people over 40 years of age. According to reference [9], this can occur because changes in lifestyle from high physical movements become sedentary and changes in traditional diets that contain lots of carbohydrates and fiber become a modern pattern with higher protein, fat, sugar and food additives.

3.3. The Eating Frequency before and after Illnes

Respondents who ate regularly with a frequency of eating three times a day before suffering from gout were 32 people (91.42%), as many as 5 people (82.58%) ate twice a day, and 1 person (2.7%) ate four times a day. Whereas after respondents suffered gout who ate three times a day as many as 31 people (83.78%), as many as 4 people (82.91%) respondents ate twice a day, 2 people (5.41%) respondents ate four times a day. Distribution of respondents according to eating habits in a day is presented in the diagram (Figure 2). According to reference [10] the habit of eating three times a day is considered good to avoid the occurrence of nutritional problems.

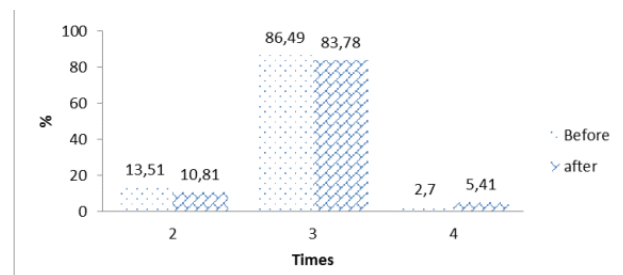


Fig. 2. Eating Frequency of Respondents before and after Illnes

3.4. Food Considered to Increase Uric Acid Levels

Staple food. Some respondents consider staple food to increase blood uric acid levels. Staple food such as white sticky rice, black sticky rice, and cassava are considered by respondents to increase blood uric acid levels. The staple food stated by respondents that can increase uric acid were glutinous rice with a value of 43.24%, followed by black sticky rice 37.83% and cassava 24.32% (Figure 3). Blood levels of uric acid according to 8.10% respondents can be reduced because of the consumption of brown rice.

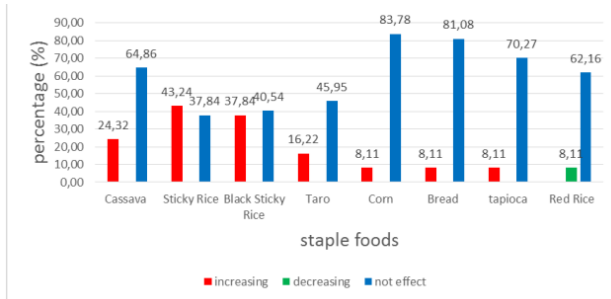


Fig. 3. Perception of Respondents about Effect of Consumption Staple foods on Level Uric Acid in Blood

Animal source foods. Animal source foods such as tunjang / kikil, cangang / jeroan and cow liver are the foods most commonly stated by respondents that can increase symptoms of hyperuricemia which is equal to 56.75%, followed by the cow liver at 51.35%, and tambusu (intestine) gulai is 45.94% (Figure 4). Minangkabau or Padang people like to eat animal process foods that contain high fat and coconut milk, such as rendang, kalio, cangang, tunjang curry, brain and cow liver curry [11].

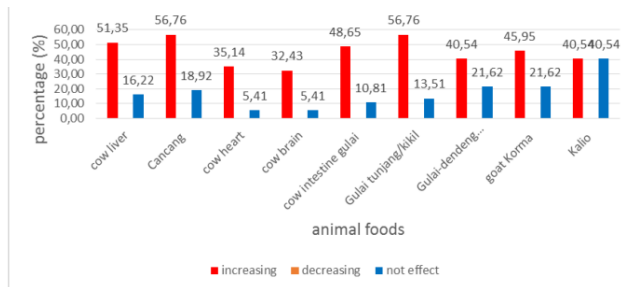


Fig. 4. Perception of Respondents about Effect of Consumption Animal Source on Level Uric Acid in Blood

Plant source foods. Vegetables stated by respondents that can increase symptoms of gout were cassava and spinach leaves by 75.67% followed by kale at 62.12% and red spinach at 48.64% (Figure 5). Types of legumes most widely expressed respondents may increase blood uric acid levels are melinjo seeds (78.37%), followed by tauco of (75.67%) and gado-gado (72.97%), while beans did not increase uric acid levels are sesame (Figure 6).

Ref. [12] said that fruits contain very little purine and are generally alkaline, but respondents stated that durian, jackfruit, avocado, banana, pineapple, watermelon, and salacca fruit can increase gout (Figure 7). This is thought to occur because of bananas, watermelons, pineapples contain high fructose. According to Ref. [13], fructose can increase uric acid because fructose is firstly used by the body to phosphorylation into fructose-6-phosphate by breaking down ATP, this breakdown of ATP will produce adenine of purine compound which is finally metabolized into uric acid. The respondents stated that durian and avocado can increase uric acid, presumably because these two types of fruit contain fat which can increase plasma fat, thereby reducing the solubility of uric acid.

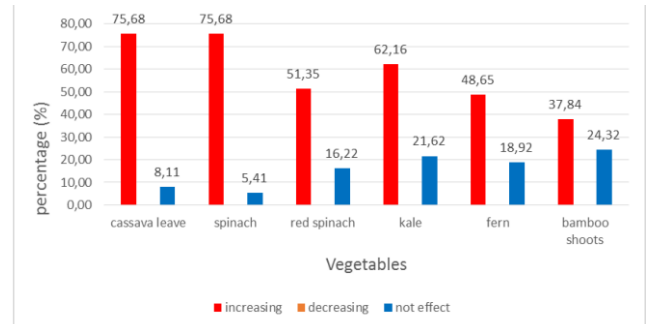


Fig. 5. Perception of Respondents about Effect of Consumption Vegetables on Level Uric Acid in Blood

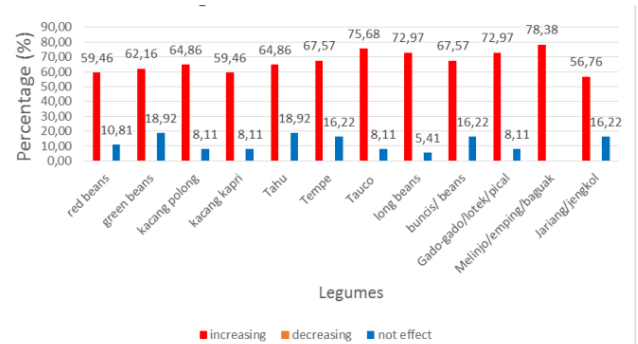


Fig. 6. Perception of Respondents about Effect of Consumption Legumes on Level Uric Acid in Blood

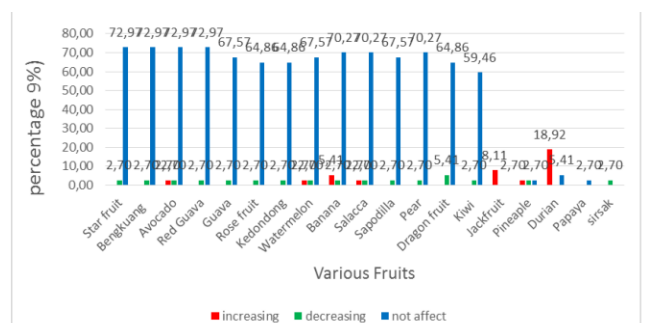


Fig. 7. Perception of Respondents about Effect of Consumption Fruits on Level Uric Acid in Blood

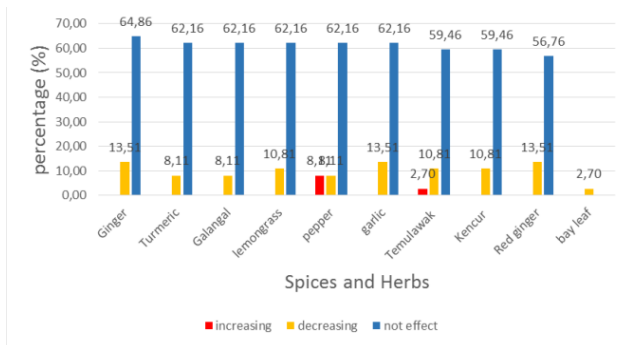


Fig. 8. Perception of Respondents about Effect of Consumption Spices and Herbs on Level Uric Acid in Blood

Based on the statement of respondents (Figure 8), foods that can reduce uric acid are ginger, red ginger, garlic, lemongrass, temulawak, kencur, turmeric, galangal, and bay leaves.

4. CONCLUSION

Animal-processed foods that can cause gout are generally not reduced by consumption, because the people of West Sumatera generally like animal-processed foods. Ginger, red ginger, and garlic were perceived by respondents to reduce gout. The eating habits of hyperuricemia respondents didn't differ between before and after illness, the frequency of eating respondents remained the same, three times a day.

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