SODIUM INTAKE IN HYPERTANSIVE PATIENTS IN RSUD dr. M. YUNUS BENGKULU

Ravi Masitah
Universitas Dhyana Pura
ravimasitah@undhirabali.ac.id

ABSTRACT

Hypertension is increased year by year and it is a major risk factor for cardiovascular diseases. Controlling of blood pressure in hypertensive patients can be done by limiting the consumption of sodium adjusted by the severity of salt retention or hypertension. The aim of this study was to determine the amount of sodium intake in hypertensive patients. This study was quantitative research. The technic used purposive sampling technique with 33 patients. Retrieval of sodium intake data used recall 3 x 24 hours. Data analysis was done descriptively. The results showed 50% of subjects with low salt diet therapy I and II and 77,8% of subjects on low salt diet therapy III had consumed sodium based on the recommended limits. The results also showed that there were still 50% of subjects on low salt diet therapy I and II and 22,2% of subjects on low salt diet therapy III consumed sodium more than the recommended limit. The Changing of healthy eating by limiting sodium intake can help to control blood pressure in hypertensive patients.

***Keywords**: Sodium intake, blood pressure, hypertension*

INTRODUCTION

Hypertension is the main cause of cardiovascular diseases such as heart disease and stroke [1]. Hypertension is a cause of morbidity and death worldwide and is increasing every year [2]. Hypertension is called a silent killer because it often does not show the indications, individuals with hypertension do not understand they are suffering this disease and do not consider hypertension as a serious problem [3]. The individual is called hypertension if the systolic/diastolic blood pressure is ≥ 140 / ≥ 90 mmHg [4].

Data from the World Health Organization (WHO) in 2011 showed that 1 billion people in the world suffer the hypertension, 2/3 of them are in developing countries with low to moderate incomes. The prevalence of hypertension will increase and it is predicted that in 2025 there will be 1,15 billion, which is about 29% of the total world population suffer the hypertension [5]. Based on Riset Kesehatan Dasar (Riskesdas) data, the prevalence of population aged ≥ 18 years who suffering the hypertension in Indonesia in 2007 was 31,7%, in 2013 was 25,8% and was increased to 34,1% in 2018 [6].

The prevalence of hypertension in the population aged ≥ 18 years in Bengkulu Province in 2013 was 21,6% [7]. Based on the medical record data of RSUD dr. M. Yunus Bengkulu there was an increase in the number of inpatient hypertension patients from 2009 to 2011. Inpatients hypertension in 2009 were 187 people consisting of 93 male patients and 94 female patients, in 2010 increased to 198 people consisting of 86 male patients and 112 female patients, and in 2011 also increased with 321 patients consisting of 142 male patients and 179 female patients [8].

The risk factors of hypertension are overweight, unhealthy eating patterns such as high consumption of sodium, physical activity, and alcohol consumption. The restriction of sodium consumption is known as an effective approach to control blood pressure in hypertensive patients [9]. Sodium causes the body to retain water with the level that exceeds the body's normal limit, so it can increase blood volume and cause blood pressure is rising. Animal food ingredients contain more sodium than vegetable. Sodium is also easily found in everyday foods such as soy sauce, seafood, fast food, and snacks [10].

ISBN: 978-602-53420-4-2

Hypertension patients who receive treatment in hospital are given low-salt dietary therapy, namely limiting the consumption of sodium adjusted to the severity of salt retention or hypertension. Hypertension patients should adhere to do low-salt dietary therapy in order to prevent further complications [11]. The fact is hypertension patients often do not consume food provided by the hospital during treatment due because of saturation, are not accustomed to do a low salt diet and are accustomed to consuming salty and savory foods with high sodium levels [12]. The aim of this study was to determine the amount of sodium intake adjusted by whether or not the heavy of salt retention or individual hypertension.

METHODS

The type of this study is a *qualitative study*. The study was conducted at the Kenanga and Lotus In patient Hospital dr. M. Yunus Bengkulu in January to February 2013. The selection of research subjects used a *purposive sampling* which is 33 patients. The primary data consist of sodium identity and intake, while the secondary data is the blood pressure of research subjects. Sodium intake is obtained by doing recall 3 x 24 hour. Research subjects who do Low Salt diet I with blood pressure ≥ 180 / ≥ 110 mmHg their maximum sodium intake were ≤ 400 mg Na / day, Low Salt diet II with blood pressure 160-179 / 100-109 mmHg their maximum sodium intake were ≤ 800 mg Na / day and Low Salt diet III with blood pressure 140-159 / 90-99 mmHg their maximum sodium intake were ≤ 1200 mg Na / day. Blood pressure data was obtained through data on medical records which was recorded in the medical register. Data analysis was done descriptively to determine the amount of sodium intake based on salt retention or individual hypertension.

FINDINGS AND DISCUSSIONS

General characteristics of research subjects can be seen in Table 1.

Table 1. General Characteristics of Research Subjects

Characteristics	n	%
Age		
40-49	12	36,4
50-59	21	63,6
Total	33	100
Gender		
Man	14	42,4
Women	19	57,6
Total	33	100
Education		
Primary school	10	30,3
Junior high school	13	39,4
Senior high school	9	27,3
College	1	3
Total	33	100

Based on Table 1, most of the research subjects were 50-59 years old (63,6%), female (57,6%) and junior high school level (39,4%).

Table 2. Blood Pressure Research Subjects

Blood pressure	n	%
≥ 180 / ≥ 110 mmHg	6	18,2
160-179/100-109 mmHg	18	54,5
140-159/90-99 mmHg	9	27,3
Total	33	100

Table 2 shows that most of research subjects had blood pressure of 160-179 / 100-109 mmHg (54,5%).

ISBN: 978-602-53420-4-2

Table 3. Low Salt Diet Therapy Research Subjects

The kind of diet	n	%
Low Salt diet I (200-400 mg Na/day)	6	18,2
Low Salt diet II (600-800 mg Na/day)	18	54,5
Low Salt diet III (1000-1200 mg Na/day)	9	27,3
Total	33	100

Based on Table 3, most of research subjects received low-salt diet therapy II (54.5%) with a limitation of sodium intake from 600 to 800 mg Na / day.

Table 4. Sodium Intake of Research Subjects

Sodium Intake	n	%
Research subject withLow Salt diet I		
> 200-400 mg Na/day	3	50
< 200-400 mg Na/day	3	50
Total	6	100
Research subject with Low Salt diet II		
> 600-800 mg Na/day	9	50
< 600-800 mg Na/day	9	50
Total	18	100
Research subject with Low Salt diet III		
> 1000-1200 mg Na/day	2	22,2
< 1000-1200 mg Na/day	7	77,8
Total	9	100

Table 4 shows that research subjects with low salt I and low salt II diet therapy that have sodium intake > 200-400 mg Na / day and > 600-800 mg Na / day were 50% of each. Research subjects with low salt III diet therapy that has sodium intake > 1000-1200 mg Na / day were 22,2% of each.

The results showed that 50% of subjects with low salt diet therapy I and II and 77,8% of subjects on low salt diet therapy III had consumed sodium in accordance with the recommended limits. The results also showed that there were still 50% of subjects on low salt diet therapy I and II and 22,2% of subjects on low salt diet therapy III consumed sodium more than the recommended limit.

The relationship of sodium consumption with the hypertension occurs through the increasing of blood volume, cardiac output, and blood pressure. The excessive sodium consumption caused the concentration of sodium in the extracellular fluid increased to normalize, the intracellular fluid was pulled out, so that the extracellular fluid volume increased. The increased volume of extracellular fluid caused an increase in blood volume. In addition, high consumption of sodium can reduce the diameter of the arteries, so the heart must pump harder to push the increased blood volume through narrow spaces and have an impact on hypertension [13]. The higher sodium intake, the systolic and diastolic blood pressure will increase [14].

Patients who consume sodium exceeds the recommended limit giving the reason that hospital food tastes bland, appetite decreases and the menus were served repeatedly so that they feel bored. They prefer to eat food brought by their families or bough food from outside. This is because of the habit of research subjects consuming foods that have high sodium levels such as salted fish, instant noodles, bread, biscuits, snacks and always use salt or seasoning every day in every dish with the reason if no salt it will taste bland and not tasteful. Favorite, taste or enjoyment of food can affects the selection of food ingredients. Salty and fast foods can increase person's appetite

ISBN: 978-602-53420-4-2

because of its savory taste, so if someone likes and is accustomed to consuming sodium foods such as salted fish, it will tend to consume them continuously [15].

Based on the general characteristics data of the research subjects, most of them were aged 50-59 years (63,6%), female (57,6%) and junior high school level (39,4%). High hypertension is in line with increasing age caused by structural changes in large blood vessels, so that blood vessels become narrower and blood vessel walls become stiff [16]. Womenentering premenopausal period are more likely to experience an increase in blood pressure because of loss of the hormone estrogen which protects blood vessels from damage [17]. The high risk of developing hypertension in patients with low education, is caused of lack of healthy knowledge and difficult or slow to receive information provided by officers. The higher a person's education, the more information is obtained so that patients know more about the disease and how to control blood pressure and healthy lifestyles [18].

The prevalence of hypertension continues to increase and the level of control in people with hypertension is still low. There has also been an increase in complications related to blood pressure, especially strokes, heart attacks and kidney failure. Dietary modifications such as reducing sodium intake, weight loss in overweight and obesity, increasing calcium intake from vegetables and fruits and grain intake have been proven as effective strategies for controlling blood pressure [19].

CONCLUSION

The results showed that 50% of subjects with low salt diet therapy I and II and 77,8% of subjects on low salt diet therapy III had consumed sodium in accordance with the recommended limits. The results also showed that there were still 50% of subjects on low salt diet therapy I and II and 22,2% of subjects on low salt diet therapy III consumed sodium more than the recommended limit. The changing of healthy eating by limiting sodium intake can help to control blood pressure in hypertensive patients.

REFERENCES

[1] Steinberg, D., Kay, M., Burroughs, J., Svetkey, LP., Bennett, GG. 2019. The Effect of a Digital Behavioral Weight Loss Intervention on Adherence to the Dietary Approaches to Stop Hypertension (DASH) Dietary Pattern in Medically Vulnerable Primary Care Patients: Results from a Randomized Controlled Trial. *Journal Of The Academy Of Nutrition And Dietetics*, vol. 119, no. 4, pp. 574-584.

[2] Laatikainen, T., Nissinen, A., Kastarinen, M., Jula, A., Tuomilehto, J. 2016. Blood Pressure, Sodium Intake, and Hypertension Control. *Global Heart*, vol. 11, no. 2, pp. 191-199.

[3] Kim, H & Andrade, F. 2016. Diagnostic Status of Hypertension on the Adherence to the Dietary Approaches to Stop Hypertension (DASH) Diet. *Preventive Medicine Reports*, vol. 4, pp. 525-531.

[4] Yoo, MG., Park, KJ., Kim, HJ., Jang, HB, Lee, HJ., Park, SI. 2019. Association between Alcohol Intake and Incident Hypertension in the Korean Population. *Alcohol*, vol. 77, pp. 19-25.

[5] Febrianti, T & Mustakim. 2019. Analisis Hubungan Faktor Usia, Aktivitas Fisik dan Asupan Makan dengan Kejadian Hipertensi di Puskesmas Wilayah Kerja Tanggerang Selatan. *Collaborative Medical Journal,* vol. 2, no. 2, pp. 57-67.

[6] Kemenkes RI. 2018. *Hasil Utama Riskesdas 2018*. Jakarta : Balai Penelitian dan Pengembangan Kesehatan.

[7] Kemenkes RI. 2013. *Riskesdas dalam Angkas Provinsi Bengkulu 2013*. Jakarta : Balai Penelitian dan Pengembangan Kesehatan.

[8] RSUD dr. M. Yunus Bengkulu. 2011. *Besar Pasien Hipertensi Rawat Inap Tahun 2011*. Bengkulu : RSUD dr. M. Yunus Bengkulu.

[9] Wicaksana, AL & Wang, ST. 2018. Psychometric Testing of the Indonesian Version of Dietary Sodium Restriction Questionnaire Among Patients with Hypertension. *Asian Nursing Research*, vol. 12, pp. 279-285.

ISBN: 978-602-53420-4-2

[10] Abdurrachim, R., Hariyawati, I., Suryani, N. Asupan Natrium, Frekuensi Dan Durasi Aktivitas Fisik Berdampak Terhadap Tekanan Darah Lansia di Panti Sosial Kota Banjarbaru. *Jurnal Riset Pangan dan Gizi*, vol. 1, no 1, pp. 1-7.
[11] Kurniawati & Widiatie, W. 2016. Pengaruh Pendidikan Kesehatan terhadap Kepatuhan Diet Pada Penderita Hipertensi. *The Indonesian Journal of Health Science*, vol. 7, no. 1, pp. 1-7.
[12] Palimbong, S., Kurniasari, MD., Kiha, RR. 2018. Keefektifan Diet Rendah Garam I pada Makanan Biasa dan Lunak terhadap Lama Kesembuhan Pasien Hipertensi. *Jurnal Keperawatan Muhammadiyah,* vol. 3, no. 1, pp. 74-89.
[13] Ponto, LW., Kandou, GD., Mayulu, N. 2016. Hubungan antara Obesitas, Konsumsi Natrium, dan Stres Dengan Kejadian Hipertensi pada Orang Dewasa di Puskesmas Tompaso Kabupaten Minahasa. *Paradigma*, vol. 4, no. 2, pp. 115-129.
[14] Fitriani., Marlina, Y., Roziana., Yulianda, H. 2018. Gambaran Asupan Natrium, Lemak dan Serat pada Penderita Hipertensi di Kelurahan Tanjung Gading Kecamatan Pasir Penyu Kabupaten Indragiri Hulu. *Jurnal Proteksi Kesehatan*, vol. 7, no. 1, pp. 1-8.
[15] Libri, O., Abdurrachim, R., Mariana, D. Hubungan Tingkat Pengetahuan dan Konsumsi Natrium terhadap Tekanan Darah Penderita Hipertensi di Wilayah Kerja Puskesmas Cempaka Tahun 2015. *Jurnal Publikasi Kesehatan Masyarakat Indonesia*, vol. 6, no. 1, pp. 20-25.
[16] Anjani, NMD., Sulendri, NKS., Laraeni, Y., Jaya, IKS. 2017. Pengaruh Pemberian Jus Mentimun Air Kelapa Muda terhadap Penurunan Tekanan Darah Lansia Hipertensi di Panti Sosial Tresna Werdha "Puspakarma" Mataram. *Jurnal Gizi Prima*, vol. 2, no. 2, pp. 127-136.
[17] Adriaansz, PN. 2016. Hubungan Konsumsi Makanan Dengan Kejadian Hipertensi Pada Lansia di Puskesmas Ranomuut Kota Manado. *ejournal Keperawatan*, vol. 4, no. 1, pp. 1-6.
[18] Ramadi, RV. 2017. Hubungan *Psychological Well Being* Dengan Derajat Hipertensi Pada Pasien Hipertensi di Puskesmas Bahu Manado. *e-Journal Keperawatan*, vol. 5, no. 1, pp. 1-9.
[19] Hardinsyah & Supariasa IDN. 2016. *Teori dan Aplikasi.* Jakarta: EGC.

ISBN: 978-602-53420-4-2