



Watermelon juice for lowering blood pressure on hypertensive patients: a case study

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ABSTRACTS

Background: The elderly are susceptible to infectious disease infections due to degenerative problems. Besides that, many non-communicable diseases appear in the elderly, including; diabetes mellitus, arthritis or gout, stroke, and hypertension. Hypertension is a state of increased blood pressure exceeding normal limits, where systolic >140 mmHg and diastolic >90 mmHg after two measurements, with an interval of 5 minutes where the patient is calm or at rest. One of the non-pharmacological therapies for hypertension is by consuming watermelon juice. Watermelon is a fruit that contains high enough potassium, water, and fiber, which affects lowering blood pressure. **Purposes:** This study aimed to determine the effect of giving watermelon juice on reducing high blood pressure. **Method:** a case study conducted by observation. **Results:** it was found that after the client consumed watermelon juice for seven days, blood pressure decreased from 180/100 mmHg to 140/80 mmHg. **Conclusion:** there is an effect on giving watermelon juice to reduce blood pressure in the elderly.

ARTICLE INFO

Article History:

Received 20 July 2022

Revised 18 Aug 2022

Accepted 20 Sept 2022

Available online October 2022

Keyword:

Elderly,

Hypertension,

Watermelon Juice

1. INTRODUCTION

The elderly is characterized by a person's failure to maintain balance against physiological stress conditions. This failure is related to a decrease in the ability to live and an increase in individual sensitivity, due to certain factors the elderly cannot fulfill their basic needs both physically, spiritually and socially. Elderly is when a person is 60 years old or more. The Elderly is a process of experiencing anatomical, physiological, and biochemical aging in organ tissues that can affect the body's state of function and ability (Fatmah, 2010).

The aging process is a life cycle marked by the stages of decline in the function of various body organs, which is characterized by the increasing vulnerability of the body to various disease attacks. This is because with increasing age there are changes in the structure and function of cells, tissues, and organ systems with increasing age, physiological functions decrease due to degenerative processes (aging). So that the elderly are susceptible to infectious disease infections due to degenerative problems that reduce the immune system, such as; tuberculosis, pneumonia, and hepatitis. In addition, many non-communicable diseases appear old, including; diabetes mellitus, arthritis or gout, stroke, and hypertension. (RI Ministry of Health, 2016).

Hypertension is a state of increased blood pressure beyond normal limits, where systolic > 140 mmHg and diastolic > 90 mmHg after two measurements, with an interval of 5 minutes where the patient is calm or resting (Kemenkes RI, 2014). Hypertension is the most common cardiovascular condition, when left untreated, hypertension can lead to severe complications, such as coronary artery disease, myocardial infarction, peripheral arterial disease and stroke (Rajca A, 2018). World Health Organization (WHO) data in 2015 around 1.13 billion people in the world suffer from hypertension, it shows that one-third of people in Indonesia suffer from hypertension. And this will continue to increase every year, it is possible that by 2025 the number of people suffering from hypertension could reach 1.5 billion people. Meanwhile, according to the 2018 Basic Health Research in Indonesia, 34.1% of people suffer from hypertension.

Hypertension is very closely related to lifestyle factors and diet. Lifestyle influences a person's behavior or habits that positively or negatively influence health. Treatment for the elderly with hypertension needs to be done, so that it doesn't get worse and complications don't appear which are actually preventable (Fatmawati, 2018).

Treatment of hypertension can be done pharmacologically and non-pharmacologically. Pharmacological therapy can be done by taking antihypertensive drugs, these antihypertensive drugs are combined with various diuretic drug complexes such as hydrochlorothiazide and lazix, these drugs are a class of drugs that greatly stimulate the excretion of body fluids through the urine. Beta carotene, potassium and potassium which function to neutralize blood pressure. Meanwhile, non-pharmacological treatment can be done by exercising, eating a high-fat diet, reducing salt consumption, and herbal plants, one of which is herbal plants such as cucumber, garlic, chayote, celery, bay leaves, watermelon, and many other fruits or other vegetables that can be used for herbal medicine (Arturo, 2012) One of the fruits that can lower blood pressure is watermelon, because the antihypertensive drug contained in watermelon is potassium, beta carotene, and potassium. Watermelon is a fruit that is high in potassium, water and fiber.

Potassium content in watermelon can reduce the effect of sodium so that blood pressure decreases, maintains blood viscosity and stabilizes. Potassium functions as a natriuretic and diuretic due to the high water content in watermelon which can cause an increase in sodium and fluid expenditure by carrying the results of the body's metabolism so that sodium can be excreted through the urine (Manurung & Wibowo, 2016). Based on the background above, the authors are interested in writing scientific papers on nursing care for elderly patients with hypertension with watermelon juice therapy to reduce blood pressure.

2. METHODS

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Patient Information

The patient was female aged 60 years old and had hypertension since three years ago, and the client was taking Amlodipine 10 mg. The patient said that he is now experiencing pain in his head radiating to his neck and shoulders, with a pain scale of 5.

Clinical Findings

The biological condition of patient has no allergies to food, drugs and temperature. Patient eats one serving 3 times a day, when his blood pressure begins to stabilize the client says there are no restrictions on eating high salt, such as eating salted fish, but if it is known that his blood pressure is increasing the client avoids foods high in salt, patient eating without

the help of others. Patient drink 1200 ml equivalent to 2 bottles of moderate mineral water for a day, frequency of urination: 1500 ml with a frequency of urinating 9-12 times a day.

subjective data obtained, namely patient complains of pain or dizziness in the head and spreads to the neck and shoulders, the client feels a headache during activities, pain like the whole head is grabbed, pain scale is 5, and the pain feels intermittent. Patient also said he had trouble sleeping, at night Patient always wakes up from sleep even though there is no noise, the client says he often thinks about his condition why his blood pressure doesn't go down.

The objective data obtained from the TTV examination were: Blood Pressure: 180/100 mmHg, Pulse: 89 x/min, Temperature: 36 , Respiration: 20 x/min, BB: 40kg. From the results of the system assessment on Ny. A, the general condition is obtained: Patient is tired, looks pale, can perform ADLs independently but is hampered because every time the client performs an activity the client feels dizzy and weak, there are changes in eye vision, there is a reduction in hearing, changes in hair color, changes in pigmentation, anxiety, and difficulty concentrating. On cardiac examination (Inspection, Palpation, Percussion, Auscultation): Palpation of the chest wall is palpable (strong), BJ I sounds (single), (loud), (regular) BJ II sounds (single), (loud), (regular) .

The functional status assessment was assessed using the Kats Index. Kats index value on Patient is A because the level of independence in daily activities such as eating, continence, moving, going to the restroom, dressing and bathing is done independently. From the results of the cognitive and affective status assessment using the Short Portable Mental Questionnaire (SPMSQ) format, Ny. A included experiencing intellectual function intact because, of the 10 questions asked to Mrs.A, Mrs.A answered 10 questions correctly. From the results of the examination of cognitive function using the Minimental-state examination (MMSE), the result was 28, which means there was no cognitive change.

Assessment of the psychological and social condition of patient has a good emotional state such as not being easily offended or angry with other people, has good family support, has good inter-family relationships. Patient also has good relationships with others because patient is one of those people who often chats with neighbors the same age as him or younger than him. Spiritual study Patient found that the client is diligent in worship, and the client is also diligent in attending recitations every week at the majlis near his house.

Diagnostic Assessment

The nursing diagnosis for this client is decreased cardiac output and sleep disorder. Nursing care plan carried out by heart care and sleep support.

Therapeutic Intervention

The interventions carried out in the diagnosis of decreased cardiac output are drinking watermelon juice to decrease blood pressure. Potassium content in watermelon can reduce the effect of sodium so that blood pressure decreases, maintains blood viscosity and stabilizes. Potassium functions as a natriuretic and diuretic due to the high water content in watermelon which can cause an increase in sodium and fluid expenditure by carrying the results of the body's metabolism so that sodium can be excreted through the urine.

3. RESULTS AND DISCUSSION

The nursing intervention of giving watermelon juice was carried out for 7 days and the result was that patient said that she was able to make her own watermelon juice, patient said she was happy because her blood pressure had dropped. On the first day of intervention, Mrs.A's blood pressure was 180/100 mmHg and after 7 days of intervention, Mrs.A's blood pressure became 140/80 mmHg.

Before drinking the juice Patient first measured blood pressure to find out if there was a change after the intervention was given, after that patient prayed first before drinking watermelon juice, then after 2 hours of giving patient again measured blood pressure to find out if there was a change after being given the intervention, then the author made a time contract to observe patient for 7 days and did watermelon juice therapy to lower her blood pressure.

The tools and materials for making watermelon consist of; measuring cup, drinking glass, blender, cake scale, watermelon weighing 100 gr, and 50 ml mineral water. Steps for Making Watermelon Juice:

- a. Weigh the watermelon weighing 100 grams using a cake scale
- b. Enter the watermelon that has been weighed into the blender
- a. Add 50 ml mineral water (without sugar) measure the water using a measuring cup
- a. Crush it using a blender, then pour the juice into a drinking glass

When implemented on the first day before giving watermelon juice therapy, the client's blood pressure was 180/100 mmHg and after 7 days, 2 hours after the intervention, the writer measured blood pressure again to patient. The results obtained were 140/80 mmHg, patient said he was no longer dizzy, patient looks no longer limp & pale like the first day the assessment was carried out.

On the first day of intervention for the diagnosis of decreased cardiac output, the results of Ny. A said that his head was heavy, spreading to the neck and shoulders, the results of the data obtained were BP: 180/100mmHg, N: 80 x/min, Rr: 20 x/min, BB: 40 kg, incoming fluid: 1200 ml equivalent to 2 medium mineral water bottles for a day, the liquid that comes out: 100 ml with a frequency of urinating 9-12 times a day, there has been no decrease in blood pressure in patient.

The second day when the intervention was carried out on the diagnosis of decreased cardiac output, the results were patient said that his headaches were still severe, radiating to the neck and shoulders, the results of the data obtained were BP before activity and before intervention: 180/90 mmHg, N: 88 x/min, Rr: 20 x/min, BW: 40 kg, incoming liquid: 1200 ml equivalent to 2 bottles of medium mineral water for a day, liquid coming out: 100 ml with a frequency of urinating 9-12 times a day, patient drank watermelon juice every morning as much as 100 grams of blood pressure after being given an intervention, namely: 170/100 mmHg. There was a decrease in Mrs.'s blood pressure. A. The third day when the intervention was carried out on the diagnosis of decreased cardiac output, the results were patient said the headache was still severe when doing activities, the results of the data obtained were BP before activity and before intervention: 170/100 mmHg, N: 90 x/min, Rr: 20 x/min, BW: 40 kg, incoming fluids : 1200 ml equivalent to 2 bottles of medium mineral water for a day, the liquid that comes out: 100 ml with a frequency of urinating 9-12 times a day, patient drank watermelon juice every morning as much as 100 grams, blood pressure after being given the intervention, namely: 170/90 mmHg. There was a decrease in Mrs.'s blood pressure.

The fourth day when the intervention was carried out on the diagnosis of decreased cardiac output, the results were patient said that his headaches were still severe when doing activities, the results of the data obtained were BP before activity and before intervention: 170/100, N: 90 x/min, Rr: 20 x/min, BW: 40 kg, fluid intake: 1200 ml is equivalent to 2 bottles of medium mineral water for a day, the liquid that comes out: 100 ml with a frequency of urinating 9-12 times a day, patient drank watermelon juice every morning as much as 100

grams, blood pressure after being given the intervention, namely: 160/90 mmHg. There was a decrease in blood pressure in patient

The fifth day when the intervention was carried out on the diagnosis of decreased cardiac output, the results were patient said the headache was not so severe but if doing activities started to feel dizzy, the results of the data obtained were TD before activity and before intervention: 160/100 mmHg, N: 89 x/min, Rr: 20 x/min, BB: 40 kg, incoming liquid: 1200 ml equivalent to 2 bottles of medium mineral water for a day, liquid coming out: 100 ml with a frequency of urinating 9-12 times a day, patient drank watermelon juice every morning as much as 100 grams, blood pressure after being given the intervention, namely: 160/90 mmHg. There was a decrease in blood pressure in patient

The sixth day when the intervention was carried out on the diagnosis of decreased cardiac output, the results were patient said the headache was not so severe, the results of the data obtained were BP before activity and before intervention: 140/100, N: 85 x/min, Rr: 20 x/min, BW: 40 kg, fluid intake: 1200 ml equivalent to 2 bottles of medium mineral water for a day, the liquid that comes out: 100 ml with a frequency of urinating 9-12 times a day, patient drank watermelon juice every morning as much as 100 grams, blood pressure after being given the intervention, namely: 140/80 mmHg. There was a decrease in blood pressure in patient

On the seventh day when the intervention was carried out on the diagnosis of decreased cardiac output, the results were patient said the client said his headaches were not so severe and not frequent, the results of the data obtained were BP before activity and before intervention: 140/80, N: 85 x/min, Rr: 20 x/min, BW: 40 kg, incoming liquid: 1200 ml equivalent to 2 bottles of medium mineral water for a day, liquid that comes out: 100 cc with a frequency of urinating 9-12 times a day, patient drank watermelon juice every morning as much as 100 grams, blood pressure after being given the intervention, namely: 140/80 mmHg. There was a drastic reduction in Mrs.'s blood pressure. A after 7 days of intervention.

After nursing intervention for 7 days, it was found that patient said that she was able to make her own watermelon juice, patient said she was happy because her blood pressure had dropped. On the first day of intervention, Mrs.A's blood pressure was 180/100 mmHg and after 7 days of intervention, patient's blood pressure became 140/80 mmHg.

Potassium content in watermelon can reduce the effect of sodium so that blood pressure decreases, maintains blood viscosity and stabilizes. Potassium functions as a

natriuretic and diuretic due to the high water content in watermelon which can cause an increase in sodium and fluid expenditure by carrying the results of the body's metabolism so that sodium can be excreted through the urine (Manurung & Wibowo, 2016). According to Batin, Tina, & Saptaputra, 2017, potassium relaxes blood vessels and muscles and regulates sodium balance in cells, which plays an important role in triggering hypertension and is utilized by the autonomic nervous system (ANS) which controls heart rate, brain function and brain processes. other important physiology.

In a study by Shanti & Zuraida, 2016 it was said that the amino acid content of watermelon can maintain normal blood pressure, improve arterial function and reduce blood pressure in the aorta. Watermelon can reduce high blood pressure because it contains potassium which improves the heart's work and citrulline which can encourage blood flow to all body parts. Watermelon fruit can meet the needs of potassium and water as well as the positive value of adding antioxidants, potassium is one of the inhibitors of renin release in the kidneys, potassium indirectly helps stimulate the sympathetic nerves in inhibiting sodium retention thereby lowering blood pressure. The water content in watermelon can increase fluid levels in the body so that it can help inhibit the release of renin. This paper is in line with previous research conducted by (Nova, 2013), there are differences in blood pressure before and after consuming watermelon juice in the elderly with a history of hypertension in the city of Padang, stating that "there are differences in systolic and diastolic blood pressure before and after giving the juice. watermelon.

For further problems, a second diagnosis was obtained, namely sleep pattern disturbance. When examining patient said that every night it was difficult to sleep, when patient complained that he often woke up even though there was no noise. When examined more deeply, patient said he was worried about his condition because his blood pressure would not go down, that was what caused patient hard to fall asleep.

The interventions carried out in the diagnosis of sleep pattern disorders are deep breathing relaxation therapy with the aim that patient felt relaxed and didn't think about the strange things about her illness anymore, and was able to sleep soundly. Implementation is carried out for 4 days, the client says that he can do deep breathing relaxation therapy himself, if the client feels anxious about his condition the client does deep breathing relaxation therapy, and during the deep breathing relaxation intervention for 4 days the client says he can sleep soundly.

In line with Ratna's research, 2019, it can be concluded that progressive relaxation techniques effectively reduce insomnia in old age. The decrease in insomnia in the elderly after daily deep breathing relaxation exercises is also supported by the theory that relaxation exercises with conscious breathing techniques and using the diaphragm allow the abdomen to be lifted slowly and the chest to expand fully. This breathing technique is able to provide massage to the heart which is beneficial due to the rise and fall of the diaphragm, opening blockages and improving blood flow to the heart and increasing blood flow throughout the body. Increased blood flow can also increase nutrients and O₂. Increased O₂ in the brain will stimulate an increase in serotonin, making the body calm and easier to sleep.

4. CONCLUSION

Implementation carried out by giving watermelon juice to hypertensive patients for seven days can be concluded that giving watermelon juice can be done independently at home as a non-pharmacological measure and can reduce blood pressure from 180/100 mmHg to 140/90 mmHg.

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