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Implementation of Banana Juice Administration in Increasing Potassium with Hypokalemia History of CVD Infarction on the 6th Floor of the Darmawan Pavilion, Gatot Soebroto Army Hospital

F.Dwi Basuki[1], Destria Vidi Fatikah[2]
Nursing Study Program, Gatot Subroto Health College
e-mail: destriavidi12@gmail.com

Abstract

Hypokalemia is a condition of blood potassium concentration below 3.5 mEq/L caused by a decrease in the total amount of potassium in the body or a disruption in the movement of potassium ions into cells and changes in the activity of the endogenous sympathetic nervous system. Cardiovascular disease (CVD) is a disorder of the heart and blood vessels. The design method of this study is descriptive using a case study approach. This study was taken on the 6th floor of the Darmawan Pavilion, Gatot Soebroto Army Hospital, with one client diagnosed with Electrolyte Imbalance Disorders related to regulatory mechanism disorders. Based on the results of the case study between the case and the research journal, it was found that clients who experienced Hypokalemia with a history of CVD infarction had a gap or difference in nursing problems. Between the case and the research journal, there was an intervention gap in the case study of electrolyte management, namely Hypokalemia, then implementation was carried out and the results were obtained at the time of evaluation, namely the problem was resolved. Based on the results of the case study conducted at the Darmawan Pavilion, 6th Floor, Gatot Soebroto Army Hospital, the application of banana juice to patients with hypokalemia. The results of this study are supported by the results of research by Edy Waliyo, Nopriantini, Shelly Festilia Agusanty.

Keywords: Nursing Care; Hypokalemia; Cardiovascular Disease infarction (CVD); Banana.

Introduction

Potassium is a mineral in the body that controls the function of nerve and muscle cells, especially the heart muscle. Potassium also plays a role in maintaining body fluid balance and regulating blood pressure (Cunha, 2021). Hypokalemia is a condition where the blood potassium concentration is below 3.5 mEq/L which is caused by a decrease in the total amount of potassium in the body or a disruption in the movement of potassium ions into cells and changes in the activity of the endogenous sympathetic nervous system, for example in hyperthyroidism, acute myocardial infarction and severe head injury, and the use of certain drugs such as diuretics. (Maggie Nathania, 2019). In patients with hypokalemia, to meet the body's need for potassium, they can consume one of the foods high in potassium, namely bananas. Bananas contain around 422 mg so that bananas can increase potassium levels in the blood. (Nikmah Nuur R, et al. 2021).

Cardiovascular disease (CVD) is a disorder of the heart and blood vessel system. Diseases that affect the structure or function of the heart such as coronary artery disease, heart attack, arrhythmia, heart failure, other vascular diseases. And

reported heart disease as the leading cause of death throughout WHO, 2021). Acute blockage of blood flow from the heart to the brain can cause heart attacks and strokes.

Based on data according to WHO, (2021) The prevalence of hypokalemia in 2021 was 7-17% in patients with cardiovascular disorders, 40% in patients receiving diuretic therapy and in elderly patients around 5% had potassium levels <3 mEq/L. (the data is not an accumulation of all countries in the world). In 2022, the death rate due to cardiovascular disease marked by hypokalemia in Indonesia was 1.5% of all ages of the Indonesian population. (Ministry of Health of the Republic of Indonesia 2021). Based on data obtained by the author in the 6th floor treatment room of the Darmawan Pavilion, Gatot Soebroto Army Hospital, data on the prevalence of Hypokalemia cases during the last 6 months starting from January 2024-June 2024 was 10 cases (3.7%) of the total number of patients, which was 275 patients.

Thus, nurses are needed to prevent complications in patients with Hypokalemia with a history of CVD infarction. The role of nurses as promotive is to provide health education about a high potassium diet (bananas, green vegetables, tomatoes). The role of nurses as preventive is to prevent seizures or cramps in the hands and feet repeatedly due to potassium deficiency. The role of nurses as curative is to collaborate with doctors in administering drugs for hypokalemia. The role of nurses as rehabilitative is that nurses provide banana juice to increase the body's potassium concentration.

Method

The case study design used in this writing is a descriptive case study. A descriptive case study was conducted with the aim of describing the application of banana juice in increasing potassium with hypokalemia with a history of CVD infarction on the 6th floor of the Darmawan Pavilion, Gatot Soebroto Army Hospital using the nursing process method, namely assessment, nursing diagnosis, planning, implementation and evaluation of nursing by focusing on one important problem in the selected case. Namely the application of deep breathing relaxation therapy to reduce postoperative wound pain with a diagnosis of kidney stones.

Results and Discussion

Focus Data

Subjective Data

The patient complained of spasms in the right hand and foot and had difficulty swallowing for 2 months, had been taken for treatment and was undergoing therapy. The client complained of weakness, coughing, the client said it was difficult to swallow, the client said he had a poor appetite, the client said it was difficult to sleep due to discomfort with his throat, the client

Objective Data

The client's physical examination found that the client appeared weak and restless, composmentis consciousness, dry mucous membranes of the lips, inelastic skin turgor, there was nasal breathing and a simple face mask was installed, the client was active assisted by family, Vital signs (Blood pressure: 144/104 mmHg, Pulse: 60x/minute, Breathing: 23x/minute, Temperature: 36.3°C, o2: 99%), muscle tone examination was performed (the right hand and foot can perform full range of motion joint movements and can resist moderate or weak resistance).

Fluid balance, intake (liquid food blender 3x200ml = 600ml, nutrican 3x150ml = 450ml, Nacl 0.9% infusion 500 ml + KCL 25 mcq in 12 hours, mineral water 600ml = 3,150 ml) Output (urine 1500 ml, feces 200ml = 1,700 ml). The supporting examination obtained was a laboratory examination on May 27, 2024 at 09:15 with complete hematology results: Hemoglobin: 14.1 (N: 12.0-16.0g/dl), Hematocrit: 39 (N: 37-47%), Leukocytes 7420 (N: 4,800-10,800/uL), GDS: 102 (70-140 mg/dl), Sodium (Na): 139 (N: 135-147 mmol/L), Potassium (K): 3.1 (N: 3.5-5.0

mmol/L), Chloride (CI): 101 (N: 95-105 mmol/L), Albumin: 3.0 (N: 3.5-5.0 g/dl), Magnesium: 1.36 (N: 1.8-3.0 mg/dl), Total Calcium: 8.2 (N: 2.5-3.5 mg/dl), Urea 36 (N: 20-50 mg/dl), Creatinine 1.9 (N: 0.5-1.5 mg/dl).

Radiology results, impression: cardiomegaly with aortic elongation and classification, no radiological abnormalities in the lungs. CT Scan results of the larynx, neck, thyroid, impression: multiple bilateral colli lymphadenopathy with the largest short axis size of around 0.8 cm, left maxillary sinusitis. Management (Therapy including diet) given is Nacl 0.9% infusion 500 ml + KCL 25 mcq in 12 hours, simple mask o2 installed 6 liters/minute, diet given 1500 calories Blender NGT 3x200ml, complementary foods or snacks 3x150 ml. Data Analysis

Electrolyte Imbalance related to disruption of regulatory mechanisms with subjective data: The patient complained of right hand and foot spasms and had difficulty swallowing for 2 months, had been taken for treatment and was undergoing therapy. The client complained of weakness, Objective data:

The client appeared weak and restless, Vital signs (Blood pressure: 144/104 mmHg, Pulse: 60x/minute, Breathing: 23x/minute, Temperature: 36.3°C, o2: 99%), muscle tone examination was performed (the right hand and foot can perform full range of motion joint movements and can resist moderate or weak resistance). Fluid balance, intake (liquid food blender 3x200ml = 600ml, nutrican 3x150ml = 450ml, Nacl 0.9% infusion 500 ml + KCL 25 mcq in 12 hours, mineral water 600ml = 3,150 ml) Output (urine 1500 ml, feces 200ml = 1,700 ml).

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Nursing Diagnosis

In this case, a nursing diagnosis was made, namely Electrolyte Imbalance related to disruption of the regulatory mechanism according to data obtained from laboratory results, vital signs and fluid balance. Meanwhile, in the journal entitled "Management of Hypokalemia and General Weakness in Patients with Hypokalemia at Bhayangkara Hospital" by S. Angioni 2021, one diagnosis was made, namely decreased cardiac output related to electrical conduction dysfunction as measured by the results of vital signs and ECG.

Based on the results of the case study, it was found that between the case study and the research journal, there were similarities in data analysis using vital signs. For the difference, namely in the diagnosis, in the case study the diagnosis made was Electrolyte Imbalance related to disruption of the regulatory mechanism. While in the research journal the diagnosis made was decreased cardiac output related to electrical conduction dysfunction.

Nursing Intervention

Planning in cases is carried out with 4 components, namely observation (Monitor signs and symptoms of decreased potassium levels (eg muscle weakness, prolonged QT interval, fatigue, decreased reflexes), monitor heart rhythm, heart rate, ECG, monitor fluid intake and output, monitor serum potassium levels, monitor TTV), therapeutic (Provide a high potassium diet (eg bananas, green vegetables, tomatoes), provide potassium supplements, if necessary), education (Recommend modification of a high potassium diet (eg bananas, green vegetables, tomatoes),

collaboration (collaborating on the administration of intravenous KCI (10-20 mEq/day in 100 ml NaCl) for 1 hour, in severe hypokalemia (<2.5 mEq/L)).

Interventions carried out in the journal entitled "management of patients with hypokalemia and general weakness in patients with Hypokalemia at Bhayangkara Hospital" by S. Angioni 2021 Observation of TTV, monitor heart rate and regularity at each examination, . Monitor ECG in patients with monitoring Continuous ECG, monitor patients using digitalis for dysrhythmia. Based on the results of the case study, there was a gap in planning between the case study and the research journal, namely in the case study planning according to the SLKI guidelines, namely with observation, therapeutic, educational, and collaborative. While in the research journal only observation planning was carried out.

Nursing Implementation

Planning in the case was carried out with 4 components, namely observation (Monitor signs and symptoms of decreased potassium levels (eg muscle weakness, prolonged QT interval, fatigue, decreased reflexes), monitor heart rhythm, heart rate, ECG, monitor fluid intake and output, monitor serum potassium levels, monitor TTV), therapeutic (Provide a high potassium diet (eg bananas, green vegetables, tomatoes), provide potassium supplements, if necessary), education (Recommend modification of a high potassium diet (eg bananas, green vegetables, tomatoes), collaboration (collaborating on the administration of intravenous KCI (10-20 mEq/day in 100 ml NaCl) for 1 hour, in severe hypokalemia (<2.5 mEq/L)).

Interventions carried out in the journal entitled "management of patients with hypokalemia and general weakness in patients with Hypokalemia at Bhayangkara Hospital" by S. Angioni 2021 Observation of TTV, monitor heart rate and regularity at each examination, Monitor ECG in patients with continuous ECG monitoring, monitor patients using digitalis for dysrhythmia. Based on the results of the case study, there was a gap in planning between the case study and the research journal, namely in the case study planning in accordance with the SLKI guidelines, namely with observation, therapeutic, educational, and collaboration. While in the research journal only observation planning was carried out. Evaluation

In the case, the results of the diagnosis of Electrolyte Imbalance related to disorders of the regulatory mechanism were resolved and the goal was achieved with subjective data: the client said that his hands and feet had not been cramping or tingling since last night, objective data: serum potassium 4.0 mmol/L, elastic skin turgor, TTV Blood pressure: 130/80 mmHg, Pulse 80x/minute, Breathing 20x/minute, Temperature 36.2°C, o2 100%..

In the journal entitled "management of patients with hypokalemia and general weakness in patients with Hypokalemia at Bhayangkara Hospital" by S. Angioni 2021, the problem had not been resolved with subjective data: the patient said he was still tired, objective data: the client looked weak, tired, lethargic, TTV: BP: 116/84 mmHg, Pulse: 72x/m, Temperature 360C, RR: 20x/minute. Based on the results of the case study in the evaluation, a gap was found between the case study and the research journal, namely Assessment. in the case study the problem has been resolved while the research journal contains problems that have not been resolved.

Conclusion

Giving banana juice has an effect on increasing potassium. This conclusion is obtained from the results of the problem being resolved and the goal being achieved based on the data obtained, namely the client's subjective data saying that his hands and feet have not had cramps or tingling since last night. Objective data serum potassium 4.0 mmol / L, elastic skin turgor, TTV Blood pressure: 130/80 mmHg, Pulse 80x / minute, Breathing 20x / minute,

Temperature 36.2 ° C, o2 100%.

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