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HOLISTIC MANAGEMENT OF 61 YEAR OLD MR. J WITH DIABETES MELLITUS AND VERTIGO THROUGH A MEDICAL APPROACH FAMILY

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ABSTRACT
Chronic diseases such as diabetes mellitus and vertigo are common in elderly patients and often coexist, impacting their quality of life and daily functioning. The family medicine approach emphasizes holistic care that is patient-centered, family-focused, and community-oriented, which is essential for managing multiple chronic conditions effectively. This case report describes the holistic management of a 61-year-old male patient, Mr. J, diagnosed with type 2 diabetes mellitus and recurrent vertigo. Management strategies involved pharmacological treatment, lifestyle modification, dietary counseling, education about medication adherence, family involvement, and home visit follow-ups. After intervention, Mr. J showed improved blood glucose control, reduced frequency of vertigo episodes, and better medication adherence. His understanding of the disease and self-management skills also improved, supported by enhanced family involvement and environmental modifications. The patient's quality of life and daily activity levels increased significantly. A holistic approach based on family medicine principles can significantly improve clinical outcomes and quality of life in elderly patients with comorbid chronic diseases such as diabetes and vertigo. Integrating family support and individualized education plays a crucial role in sustaining long-term health improvements.

Keywords: diabetes mellitus; family medicine; holistic management; vertigo

INTRODUCTION
Diabetes Mellitus is a metabolic disease characterized by hyperglycemia due to abnormalities in insulin secretion, insulin function, or both. Diabetes Mellitus is included in one of the non-communicable diseases with a fairly high case rate. Based on the World Health Organization (WHO), as many as 442 million people experienced diabetes mellitus in 2014, and as many as 1.5 million people died each year. According to the International Diabetes Federation (IDF) in 2021, 90 million adults (aged 20-79 years) in the Southeast Asia region suffer from DM. This figure is expected to increase to 113 million in 2030 and 152 million in 2045. Diabetes Mellitus causes 747,000 deaths in the Southeast Asia region (WHO, 2019; WHO, 2021; IDF, 2021)

Indonesia itself is among the 10 countries with the highest number of diabetes sufferers in the world and is ranked 5th. This shows an increase in the morbidity rate of diabetes mellitus when compared to IDF data in 2019. The results of the Basic Health Research (Riskesdas) show that based on the results of blood sugar examinations, there was an increase in the prevalence of diabetes mellitus from 6.9% in 2013 to 8.5% in 2018 in the entire population in Indonesia and is expected to continue to increase every year. Indonesia's health profile in 2019 shows that DM sufferers in Indonesia in 2019 are estimated to be 3,491,698. According to data from the Provincial Health Office Lampung in 2021 saw an increase in the prevalence of the disease from 2020 to 2021 from 1.37% to 3.76% or 88,518 people (IDF, 2019; Pangribowo, 2020; Perkeni, 2021; Kemenkes RI, 2022).If it lasts for a long time, Diabetes Mellitus can attack various organs without the sufferer realizing it until complications occur, so it is often referred to assilent killer. Chronic complications of DM can be macrovascular or microvascular disorders. Macrovascular complications develop in diabetic patients, the 3

types of complications are coronary heart disease (Coronary Heart Disease = CAD), cerebral vascular disease and peripheral vascular disease (Peripheral Vascular Disease= PVD). Microvascular complications include retinopathy, nephropathy and neuropathy. This can occur because persistent hyperglycemia and the formation of glycated proteins (including HbA1c) cause blood vessels to weaken and become fragile and over time cause blockages in small blood vessels (Pangribowo, 2020).

Vertigo is a syndrome that occurs due to a disturbance in the balance system. In this syndrome, several complaints can be found such as a feeling of spinning, being pulled, and also being pushed away from the vertical. Until now, the exact cause of vertigo in each individual is still uncertain, but vertigo is known to be caused by several things such as fatigue, accidents, disorders of the inner ear, psychosomatics, etc. Research data conducted in the United States shows the prevalence of vertigo due to vestibular dysfunction in patients over 45 years old is 35%. In Indonesia itself, the prevalence of vertigo in 2017 was 50% of the elderly aged 75 years. While the distribution of the disease is most in the age range of 41-50 years at 38.7% and 51-60 years at 19.3% (Rendra and Pinzon, 2018; Kemenkes RI, 2022). Complaints that appear suddenly make patients with vertigo often feel uncomfortable. This is because holistic management of patients is often not carried out. In addition, changing behavior requires many motivating factors such as support from family and community. Management with a family medicine approach that includespatient centered, family focusedAndcommunity oriented help identify clinical problems in patients and family functions so that management of elderly patients with degenerative diseases will be more comprehensive. Through this approach, management is expected to prevent complications and improve the quality of life of patients.

STUDY OBJECTIVES

The purpose of this writing is to:

1. Identify risk factors and clinical problems in patients.
2. Implementation of family doctor-based services evidence based medicineon patients and patient management based on a patient problem-solving framework with a patient-centered approach patient centered And family approach

METODE

The analysis of this study is a case report. Primary data were obtained through anamnesis (autoanamnesis) and physical examination at the Health Center and further anamnesis through direct visits to the home to complete family data, psychosocial data and the environment. The assessment was carried out based on a holistic diagnosis from the beginning, process, and end of the study quantitatively and qualitatively. This study focuses on a single subject, a 61-year-old male patient referred to as Mr. J, who has been diagnosed with diabetes mellitus and vertigo. The study utilizes a case study approach within the framework of family medicine to explore the holistic management of chronic illness in a community setting. Data collection was conducted through home visits, direct patient interviews, physical examinations, and reviews of medical records and laboratory results. Additionally, family involvement was emphasized to assess social, environmental, and psychological factors influencing the patient's condition. The intervention included medical therapy, lifestyle modification counseling, education regarding disease management, and family empowerment. Follow-up evaluations were performed regularly to assess clinical improvement, adherence, and quality of life outcomes.

RESULT

Anamnesis

Patient Mr. J, 61 years old, came to the Kampung Sawah Health Center with complaints of dizziness and a spinning sensation and a plan to control his blood sugar. Complaints have been felt since 3 days ago and are felt especially when the patient changes position from squatting to standing and in the morning when waking up. Complaints are accompanied by nausea, vomiting, and cold sweats. The patient also said that there was blurred vision to darkness when the complaints appeared. Complaints were first felt 1 year ago and in the last 6 months the complaints have recurred 2 times. There was no worsening when compared to 1 year ago. The patient has tried taking headache medicine from the shop but the complaints still appear and disappear. Complaints often come suddenly so that they are quite disruptive to the patient's activities. No one in the patient's family has experienced similar complaints.The patient has a history of diabetes since 20 years ago. Until now, the patient has routine check-ups and takes medication. However, blood sugar remains high. The patient has a history of blood sugar levels of 294 mg/dL one month ago. The patient still often consumes various cakes and sweet drinks. The patient also has a habit of drinking coffee in the morning. The patient does not smoke and drink alcohol. The patient said he often stays up late watching TV and never exercises. The patient hopes that the complaints can disappear so that he can do activities as usual and blood sugar can be controlled well so that it does not affect other organs.

Physical examination

General condition: appears slightly ill.
Consciousness: compos mentis.
Blood pressure: 116/71 mmHg
Pulse rate : 97x/minute
Respiratory rate: 20x/minute
Temperature : 36.2ºC
Weight : 79 kg
Height : 163 cm
IMT : 29.7 (Grade I obesity).

1. Dix hallpike maneuver: The patient's head was turned to the right for approximately 10 seconds quickly, nystagmus was found to the left after 3 seconds. The patient felt nauseous and had cold sweats so the examination was stopped.
2. Romberg: The patient leans to the right.
3. Romberg is sharpened: the patient leans to the right.
4. Tendem gait: without lateralization
5. Fukuda stepping: without lateralization
6. Fast pointing test: without lateralization

Glucose examination: 215 mg/dL

FAMILY DATA

The patient is the second of five children. Both of the patient's parents have passed away. The patient currently has a wife (Mrs. Z, 60 years old) and has three children. The patient currently lives with her husband and her last child. The patient's family structure is a family that is starting to let go of adult children.The patient is a retiree and the family's current income comes from pension funds and the income of the patient's children who are private employees and honorary teachers. The patient said that the income is sufficient to meet primary needs, secondary needs, and occasionally tertiary needs.The family's treatment

behavior is to take their sick family members to health services. The patient's family sought treatment at the Kampung Sawah Community Health Center, which is less than 2 kilometers from the patient's home. The patient's family has BPJS as their health insurance program. When sick, the patient will come to the Community Health Center to have his health checked.

Family Mapping

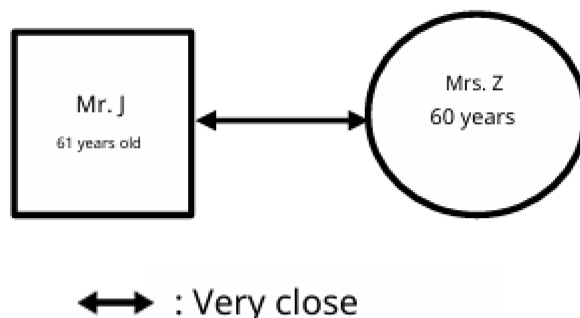

Figure 1. Relationships between families

Family Apgar Score
Adaptation: 2
Partnership: 1
Growth: 2
Affection: 2
Resolve: 2

Total Family Apgar Scoreis 9 (value 8-10, good family function).

Family Lifecycle
The patient's family form is a launching center family consisting of the patient, her husband, and her last child who is starting to grow up. According to the Duvall family cycle stage, the patient's family is at stage VI, namely a family that is starting to let go of adult children. Treatment behavior still prioritizes curative, namely checking oneself to health services if there are complaints that interfere with daily activities. Communication within the family is good. Problem solving in the family is done through family discussions and family decisions are determined by the patient as the head of the household.

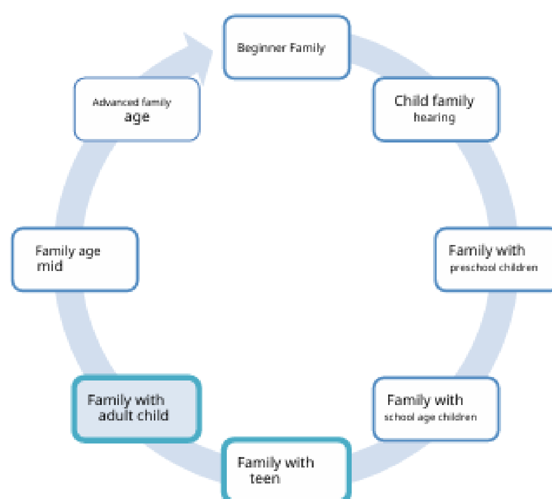

Figure 2. Mr. J's Family Life Cycle

Family SCREEM
Social: 5
Cultural: 5
Religion: 6
Economic: 2
Education: 2
Medical: 5

Total Family SCREEM score 25 (value 18-36, adequate family function).

Home Environment Data
The patient lives in a private permanent house with 2 people living there, consisting of the patient and his wife. The patient's house measures 12 x 10. 3 bedrooms, 2 bathrooms, 1 living room, 1 family room and 1 kitchen. The patient sleeps with his wife in the bedroom. The floor of the house is ceramic throughout the house, the walls are made of bricks, with a tiled roof. Sunlight enters the house from the windows. The condition of the house is not humid, ventilation and windows are in the living room, bedroom, and kitchen. The house has electricity, water comes from a drilled well, the kitchen uses a gas stove, drinking water comes from bottled water and refillable gallon water. Garbage is found in the kitchen inside house 1 and outside house 1. The patient has a septic tank 10 m away from the water source. The house has two bathrooms, each measuring 2 x 1.5 m. The toilets are squat style. The bathrooms and kitchen appear clean. has two bathrooms measuring 2 x 1.5 m². The toilets are squat-style. The bathrooms and kitchen appear clean. There is a distance between the front of the patient's house and the road. The patient's house is classified as a healthy house.

INITIAL HOLISTIC DIAGNOSTICS
1. Personal Aspect
a. Reason for arrival: The patient wanted to check his health related to the patient's complaints, namely dizziness (ICD 10: R44; ICPC 2-: N-17) accompanied by nausea (ICD-10: R11; ICPC-2: D10) and cold sweats (ICD 10-: R61; ICPC 2: A09) and blood sugar control.
b. Concern: The disease suffered does not heal and interferes with activities. The patient is also worried that blood sugar remains high even though he has taken medication.
c. Perception: The patient knows that his dizziness is vertigo but does not know the cause of the frequent complaints.
d. Hope: The disease suffered can be cured and does not recur so that the patient can carry out activities as usual. Blood sugar can be controlled within normal limits.

2. Clinical Aspects
a. Diabetes Mellitus (ICD-X : E.11; ICPC 2 : T90)
b. Benign Paroxysmal Positional Vertigo (ICD-X : H81.1; ICPC 2 : N17)

3. Internal Risk Aspects
a. Diet patterns and eating habits that often involve consuming sweet foods and drinks
b. Rarely exercise.
c. Nutritional status of patients who are obese
d. Lack of knowledge about the disease suffered.
e. Curative treatment patterns

4. External Risk Aspects
a. Family knowledge regarding vertigo as a disease experienced by the patient is still lacking.

b. Curative family treatment patterns.
c. Family knowledge in preparing appropriate diet patterns for patients is still lacking. in
d. Lack of family knowledge regarding recommended physical activities for sufferers.

5. Functional Degree
Functional level two means being able to carry out self-care and light daily work inside and outside the home, but starting to reduce activities compared to before being ill.

INTERVENTION PLAN
The interventions provided are in the form of drug and non-drug interventions related to type 2 diabetes mellitus and vertigo. Drug interventions aim to reduce complaints and prevent complications so as to improve the patient's quality of life. Non-drug interventions are in the form of counseling to patients and families regarding the definition of the disease, risk factors for the disease, lifestyle, nutrition, patient diet, and physical activity using power point media. The patient will be visited 3 times. The first visit is to complete patient data and monitoring. The second visit is to conduct intervention and the third visit is to evaluate the intervention that has been carried out. Evaluation is carried out by giving pretest and posttest to the patient.

Patient Centered
Non Pharmacology
a. Education about Diabetes Mellitus, obesity, and Vertigo includes definition, etiology, risk factors, symptoms, triggers, treatment, complications, and prevention of worsening of the disease.
b. Education regarding the regulation of nutritional intake, diet and physical exercise that is appropriate for patients with diabetes mellitus.
c. Educate patients on taking medication and conducting regular check-ups.
d. Educate patients about what can be done to prevent vertigo from occurring.
e. Education on how and the importance of vestibular exercises using the method Brand-Darof

Pharmacological
1. Betahistine Mesylate 3x6mg
2. Metformin 2x500 mg pc
3. Glibenclamide 1x5mg ac

Family Focus
1. Family education about the disease including etiology, risk factors, symptoms, treatment and complications.
2. Educate family members, especially those living with the patient, to monitor the patient's diet and physical activity.
3. Educate the family to monitor and motivate the patient to do balance exercises.
4. Educate the family to help the patient rest and be active when symptoms recur.

Community Oriented
1. Provide information and motivation using power point media regarding diabetes mellitus and direct education to patients and their families.
2. Educate the family to regularly and routinely accompany the patient to primary care facilities or doctors to check their medical condition.

FINAL HOLISTIC DIAGNOSTICS

1. Personal Aspect

a. Reason for arrival: the patient underwent a follow-up health check and the complaints felt had decreased.
b. Concerns: The patient's concerns about his/her illness disrupting his/her activities and not being able to be cured have decreased after being given an explanation regarding the illness.
c. Perception: The patient has learned how to deal with attacks, causes, routine exercises, and treatments. The patient has learned how to regulate diet so that they eat more regularly to control blood sugar levels.
d. The patient's hope for the disease he is suffering from is that it will not recur.

2. Clinical Aspects

a. Diabetes Mellitus (ICD-X : E.11; ICPC 2 : T90)
b. Benign Paroxysmal Positional Vertigo (ICD-X : H81.1; ICPC 2 : N17)

3. Internal Risk Aspects

a. The patient already knows the definition, risk factors, symptoms, prevention, and treatment of the disease he/she is suffering from.
b. Patients begin to implement a diet plan by recording the types of food consumed each day and avoiding certain types of food that are high in sugar.
c. Patients begin to get used to doing physical activities outside of their daily routine.

4. External Risk Aspects

a. The family already understands the disease suffered by the patient
b. Family medical treatment patterns are starting to change from curative to preventive treatment.
c. The family can provide support and motivation for regulating the patient's diet.
d. The family begins to get used to doing physical activities with the patient in the form of walking around the house for at least 30 minutes per day.

5. Functional Degree

Functional level one means being able to carry out self-care and light daily work inside and outside the home.

DISCUSSION

The case study was conducted on Mr. J aged 61 years with uncontrolled Type 2 Diabetes Mellitus and Vertigo which was studied by looking at the patient holistically including biological, psychological and social. The importance of a family medicine approach to this patient is because the disease is a chronic disease that is influenced by various risk factors and can cause various complications if not controlled and treated properly. In addition, this guidance does not only focus on the patient, but also focuses on his family. This is done because the management of the patient's disease is not only influenced by the patient and medical personnel, but also accompanied by the support and knowledge of the family which greatly influences the patient's disease.

This family medicine coaching was carried out in several visits. The first visit was conducted on January 24, 2023. On the first visit, activities were carried out in the form of introductions to the patient and his wife, as well as explanations regarding the purpose and objectives of the visit. This first visit was also accompanied by an anamnesis to the patient regarding the condition and family data. Anamnesis was carried out holistically to identifyfamily maps, biological, psychosocial, economic, health behavior, health facilities and infrastructure, and

the environment around the patient's home. In addition, a physical examination is carried out to determine the diagnosis. After all the data is collected, a list of problems that occur in the patient and family (personal aspects, clinical, internal risk, external risk, and functional level) is obtained so that the type of intervention to be given can be determined.Based on the results of the anamnesis that has been done, it was found that the patient has a history of vertigo since 1 year ago and diabetes mellitus since 20 years ago. The patient complained of dizziness that came and went accompanied by complaints of nausea, vomiting and cold sweats since 3 days ago. The patient did not say any complaints of DM. However, the patient came with a plan for routine control and checked his blood sugar levels. In the anamnesis, several risk factors were found that influenced the patient's disease such as obesity and unhealthy lifestyle.

Mr. J's diet is not in accordance with the doctor's recommendations, where the patient has a habit of eating 2-3 times a day accompanied by 3-4 snacks and tends to consume sweet foods and drinks. Types of food consumed varies without considering the number of calories consumed. The patient never exercises and most of the activities are done at home. Since 20 years ago, the patient has routinely checked his blood sugar levels at the health center and taken antidiabetic drugs.The diagnosis of BPPV can be established based on anamnesis and physical examination. Clinical manifestations that can be found include dizziness accompanied by nausea, vomiting, and cold sweats. When the head position is tilted or the body position changes, there is a shift in calcium rocks due to the influence of gravity. As a result, the hair cells become bent so that there is an influx of calcium ions which then releases neurotransmitters enters the synapse gap and is captured by the receptor. Furthermore, impulses are transmitted through the vestibular nerve to a higher level. The presence of the vestibular system working together with the visual and proprioceptive systems allows the body to maintain orientation or balance. The balance system consists of sensory input from the vestibular, visual, and proprioceptive apparatus. Changes in sensory input, effector organs, or integration mechanisms result in the perception of vertigo, impaired eye movement, and impaired balance. Loss of input from two or more of the vestibular systems results in loss of balance resulting in falls. Dizziness or vertigo is caused by disorders of the body's balance apparatus which results in a mismatch between the actual body position and what is perceived by the central nervous system. While cold sweat occurs due to increased activity of the autonomic nervous system (Rendra and Pinzon, 2018; Shahrami, 2016).

A diagnosis of Type 2 DM can be confirmed by checking blood sugar levels twice consecutively with results > 200 mg / dL and can be accompanied by classic diabetes complaints such as frequent urination at night, easy to feel hungry, and often thirsty. Diagnosis can also be assisted by HbA1C examination ≥ 6.5%. Based on anamnesis, the patient has eating habits that are not in accordance with the principles of the DM diet, the habit of not exercising, and lack of physical activity. Lack of knowledge of the disease suffered related to the lifestyle required and also the complications that may arise. Modifiable patient risk factors are related to lifestyle and nutritional status. Where patients rarely exercise and physical activity is relatively light. Patients tend to consume sweet foods and have irregular eating patterns, as well as BMI obesity grade I (Kemenkes RI, 2018).After the problems and factors that influence the problems in the patient were obtained, the next activity was a second visit to the patient's home on January 26, August 2023 to provide intervention. Before the intervention was carried out, the patient was asked to work on questionspretestas many as 10 questions related to vertigo and diabetes mellitus, then the resultspretest will be compared with the results posttestafter the intervention. At the time of the assessment, the patient received a score of 50, which indicates that the patient's knowledge regarding vertigo and diabetes mellitus in general is still lacking.

The interventions carried out are interventions based onpatient centered Andfamily focus. Interventions are not only based on the patient but also on his/ her family.Patient Centered Careis managing patients by referring to and respecting individual patients including preferences/choices, needs, values, and ensuring that all clinical decision-making has taken into account all the values desired by the patient.Family focused is an approach that involves patients as part of the family, so that the family becomes involved in the development of the patient's disease. For the patient's family, it is expected that there will be an increase in knowledge and a change in attitude that will lead to the patient's health.Non-pharmacological interventions are carried out with information media in the form of power points that include definitions, causes, clinical symptoms, complications. In addition, counseling is also carried out regarding the method and importance of vestibular exercises with the Epley method. The purpose of the maneuver is to return the particles to their original position, namely on the utricular macula. The Epley maneuver is most often used in the vertical canal. The patient is asked to turn their head to the affected side by 45 ° then the patient lies down with their head hanging and maintained for 1-2 minutes. Then the head is turned 90 ° to the opposite side, and the supine position changes to lateral decubitus and is maintained for 30-60 seconds. After that, the patient rests their chin on their shoulder and returns to a sitting position slowly. Do this exercise 3 times at night before going to bed until the patient is free from dizziness for 1 day afterward. Other exercises that can be done at home are: brandt daroff exercise.Brandt-Daroff exercise, this maneuver was developed as a home exercise and can be performed by the patient themselves as additional therapy in patients who remain symptomatic after the Epley or Semont maneuver (Alashram, 2024).

Counseling emphasized on importance lifestyle changes of the patient which include changes in diet and increased physical activity. The patient's family also participates in accompanying and listening to what is conveyed to the patient. The patient's and family's knowledge about the disease is a means to help the patient carry out disease management. The patient was also examined for Random Blood Sugar and the result was 297 mg/dL. Non-pharmacological interventions were closed by providing motivation to the patient and involving the patient's husband to help maintain diet, physical activity patterns and help support and motivate the patient to follow the recommendations.Pharmacological management given to the patient is Betahistine Mesylate 12 mg three times a day to treat vertigo. Betahistine Mesylate is a histamine analog drug with a function as a histamine H1 receptor agonist and H3 receptor antagonist, with this effect betahistine works in the central nervous system and specifically in the neuron system that involved in the recovery of vestibular disorders, by activating these receptors causing blood vessel enlargement and increased blood circulation which helps relieve pressure in the ear and the frequency of vertigo attacks especially Meniere's disease. Based on a study, it explains that the use of a daily dose of 32 mg to 36 mg is most effective in treating vertigo symptoms (Gameiro et al., 2024).

Patients were also given a combination of OHO in the form of Metformin 500 mg twice a day with glibenclamide 5 mg once a day. Based on the four pillars of DM management, management in the form of education, diet and physical activity are the main things that need to be done together with the administration of single or combined oral antihyperglycemic drugs early on. Administration of oral antihyperglycemic drugs or insulin is always started at a low dose, then increased gradually according to the response of blood glucose levels. Combination therapy of oral antihyperglycemic drugs, either separately orfixed dose combination, must use two types of drugs with different mechanisms of action (Perkeni, 2021).At the time the patient was initially diagnosed with DM, the patient was given metformin, a first-line anti-diabetic drug from the Biguanide group that works by increasing the sensitivity of insulin receptors. This drug is given because of its good effectiveness,

affordable price, and low hypoglycemic side effects. In patients who have been given monotherapy with metformin accompanied by non pharmacological management in the form of lifestyle modification. However, it was declared a therapy failure because it could not achieve the therapy target for 3 months, so it was replaced with a combination of 2 OHOs. Glibenclamide is a sulfonylurea drug that works by increasing insulin secretion in pancreatic β cells. The combination of biguanide and sulfonylurea drugs is recommended because it has a synergistic effect (Kemenkes RI, 2020; Perkeni, 2021).

The third home visit was conducted on February 1, 2024 to conduct an evaluation after pharmacological and non pharmacological management was given. From the results of the anamnesis, it was found that the complaint of dizziness was no longer felt. The patient has also taken oral hypoglycemic drugs regularly. The patient's diet was assessed based onfood recordalso appropriate. The patient also began to record the food menu consumed every day and began to do physical activities for 30 minutes, 3x a week in the form of walking around the house with his wife and aerobics at home.Re-examination was carried out, weight: 79 kg, height: 163 cm, BMI: 29.7, blood pressure: 120/72 mmHg. On examination Dix-Hallpike maneuvernystagmus was no longer found. Blood sugar level: 238 mg/ dL. It can be concluded that there was a change in better values after following the advice given during the intervention.The evaluation was continued by reassessing the patient's knowledge about vertigo and diabetes mellitus by conducting a question and answer session related to the patient's and family's perception of their illness. Currently, the patient and family already know the triggers for the complaints so they are more careful when waking up in the morning, praying, or changing position from squatting to standing. The patient also understands that even though they have received oral hypoglycemic drugs, appropriate diet and physical activity have a great influence on lowering blood sugar levels. After that, the patient was asked to work on the post-test questions and the result was 100, which means that the patient already understands their illness. The patient's concerns regarding the complaints they are experiencing are reduced because they already know that the illness they are experiencing can be controlled and improved by taking medication regularly, maintaining a diet, doing physical activity and routinely checking their blood sugar levels even without complaints.

CONCLUSION

Mr. J, a 61-year-old patient with diabetes mellitus and vertigo, has several internal risk factors such as limited knowledge about his illness, an inappropriate diet, lack of physical activity, and grade I obesity, all of which affect his health condition. External factors also play a role, including the family's limited understanding of the disease, curative rather than preventive care, and inadequate support in maintaining proper nutrition and physical activity. The patient was visited three times: the first visit for data collection and monitoring, the second for intervention, and the third for evaluation. During the intervention, educational posters were used to increase the patient's and family's understanding of diabetes. Improvements in knowledge were observed in both the patient and his family after the intervention, which was patient-centered and family-focused. Holistic and comprehensive management using a family doctor approach resulted in better understanding of both vertigo and diabetes in the patient.

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