

Case Study: Effectiveness Of Rom (Range Of Motion) Measures In Type Ii Dm (Diabetes Mellitus) Patients Undergoing Palliative Care

Emma Setiyo Wulan ¹ , Wafda Nailil Muna ²

Study Program Lecturer Nursing Profession ¹ , Student Study Program Nursing Profession ²

Email : emmawulan8@gmail.com , wnaililm@gmail.com

ABSTRACT

Abstract. Background: Diabetes Mellitus is included in group metabolic disorders with characteristics hyperglycemia that occurs consequence abnormalities insulin secretion , insulin action or both of them . With prevalence improvement sufferers every the year with complications diabetic wounds or gangrene wounds . From the disease and complications of Diabetes Mellitus cause problem nursing intolerance impactful activities No fulfillment activity daily so that needed monitoring in a way special . Purpose : to know effectiveness ROM (*Range Of Motion*) measures in type II DM patients undergoing maintenance palliative . Method : Type study This is qualitative Descriptive with method approach studies case using 1 respondent who had Diabetes Mellitus Type II with problem intolerance activities and living maintenance Palliative care . The research location was in the ICU of Dr. Soetomo General Hospital. Loekmono Holy Gift 2025. Results: After being carried out exercise range movement passive for 3 days received day 1 strength muscle extremities on right 3 and left 3. Extremities lower right 2 and left 2. Day 2 strength muscle extremities on right 3 and left 3, extremities lower right 2 and left 2. Day 3 strength muscle extremities on right 4 and left 4, extremities lower right 3 and left 3. Conclusion: ROM actions in patients with Diabetes Mellitus Type II is capable increase strength muscle patients , so that problem intolerance patient activity can resolved part for 3 days .

Keywords : Diabetes Mellitus, Intolerance , ROM

INTRODUCTION

Diabetes mellitus is something disease chronic marked with existence improvement glucose in blood (hyperglycemia) due to existence disturbance insulin secretion , decreased insulin action , or consequence from both of them so that can cause complications (ADA, 2024). Diabetes mellitus is a disease which are caused by Because height sugar levels in blood (Kumalasari , 2024). Diabetes mellitus type II something disease marked by sugar glucose rising caused by Because inadequate insulin production appropriate or used by the body . Diabetes mellitus is disease complicated with component strong environment and genetics (Ministry of Health of the Republic of Indonesia 2022).

According to data (WHO, 2022), approximately 422 million people worldwide suffer from diabetes mellitus . Based on data published by the World Health Organization (WHO), diabetes will be one of of the top 10 reason deaths worldwide in 2022. The International Diabetes Federation (IDF, 2021) stated that Indonesia is seventh in the world with a total of 10.7 million diabetes mellitus sufferers , and also as many as 1.5 million people died due to Diabetes Mellitus. Prevalence cases of diabetes mellitus according to profile health Central Java in 2020 was 582,559 cases (13.67%), in 2021 it was 467,365 (11.0%), and in 2022 it was 163,751 (15.6%) (Central Java Health Office , 2022). Based

on results Kudus Health Service report in 2020 that amount DM sufferers as many as as many as 20638 people. Based on study from Sukarmin , et al ., (2020) Prevalence of Diabetes Mellitus (DM) at Dr. Soetomo General Hospital. Loekmono Hadi Kudus shows improvement from year to year . Survey data beginning show that amount DM cases in the Outpatient Unit are increasing from 1104 cases (January-March 2019) to 1119 cases (April- June 2019), and then down to 1034 cases (July -September 2019).

Diabetes mellitus Alone is metabolic disease which is one of the sign the symptoms is with increasing level glucose blood or the usual called Hyperglycemia , with signs and symptoms other Diabetes Mellitus sufferers a number of patient will experiencing high thirst so that patient will Lots drink or polydipsia , then Lots pee or polyuria , lots of Eat or Polyphagia (Perkeni , 2021). Diabetes Mellitus Alone is something disease that is degenerative disease this is also called as a silent killer because many sufferers who are still Not yet realize If himself suffering from Diabetes Mellitus . Disease This can give bad effects on the body somebody moreover return If somebody Already experience complications like case in point disorders of the nerves and blood vessels blood and others (International Diabetes Federation, 2021) .

Intolerant activity is part problems that arise in sufferers of type II diabetes mellitus due to imbalance between supply and demand oxygen to distal direction especially in the extremities lower , management that can done like improvement exercise strength with ROM. *Range Of Motion* (ROM) is activities carried out For help launch circulation blood , repair circulation blood , increase strength muscles , as well as overcome limitations movement joints (Herliawati , 2019). Diabetes is one of the disease progressive that requires long treatment and high costs . Patients with disease progressive No only experience problem physique like pain , shortness of breath breath , decrease weight , disorders activities , but also experienced disturbance psychosocial and spiritual factors that influence quality life patients and their families . Care palliative care in diabetes (DM) patients aims For increase quality live and reduce disturbing symptoms , either in a way physique and psychological , as well as support patients and families in face an incurable disease can cured . Treatment This No only given at the end life , but also can given simultaneously with maintenance active for diabetes. Based on description above, then researchers interested For do study about *case study*: effectiveness ROM (*Range Of Motion*) action In Type II DM (Diabetes Mellitus) patients who undergo maintenance palliative.

METHODS

Study use type study qualitative descriptive , which aims For describe and explain phenomena that occur moment this . Research design in work write scientific This is studies case . The approach used in studies This is approach care nursing which includes from assessment , diagnosis nursing , intervention or planning , implementation or implementation , and also evaluation . Study case This apply action ROM care in Type II DM patients . Research This conducted in the ICU of Dr. Hospital. Loekmono Holy Gift 2025 .

Subject studies case This is patients suffering from Type 2 Diabetes Mellitus with criteria inclusion among other things, the existence of ulcer , experiencing problem intolerance activities , running maintenance palliative , willing become respondents , subjects studies totaling 1 patient with taking subject studies use purposive sampling technique .

Treatment carried out on the subject studies case is exercise *range of motion* (ROM) in the extremities . The implementation process studies case started with with request letter permission , choose patient or family who have set in accordance criteria ,

Providing explanation and asking agreement , explain objectives and procedures actions to be taken carried out . Implementation of nursing actions done 3 actions . Instruments used in case study This that is with measure scale strength muscle patients 0-5 and perceived responses patient before and after done ROM actions.

RESULTS AND DISCUSSION

Study results case This describe management cases in patients with type II diabetes mellitus who experience problem intolerance activity with existence wound ulcer at the feet right so that need maintenance palliative care . The care actions taken that is exercise *Range Of Motion* (ROM), and observed every action done .

1. Assessment

Assessment This conducted on May 2 , 2025 on two respondents suffering from diabetes mellitus with existence ulcer diabetic in the ICU of Dr. Loekmono Regional Hospital Holy Hadith .

Results of the study show that subject studies case there is ulcer diabetic . Subject studies case own complaint there is wound in the part extremities lower precisely on the soles of the feet right , post op debridement on his right leg , feeling weak, weak , family subject studies case say activity assisted by family , strength muscle extremities on right 3 and left 3. Extremities lower right 2 and left 2.

2. Diagnosis Nursing

Diagnosis nursing on the subject studies case is Intolerance activity . Diagnosis nursing the formulated based on minor characteristics , namely subject studies case feel weak, limp , condition clinical related there is disturbance metabolic namely type 2 diabetes mellitus with ulcer diabetic in the right foot .

3. Plan Nursing

Plan action formulated nursing For subject studies cases include: identification disturbance function body that results in tired , do it exercise range movement passive and/ or active , recommend bed rest .

4. Implementation Nursing

Implementation exercise *range of motion* (ROM) of the extremities on lower with movement flexion , extension , dorsiflexion , plantarflexion . ROM actions are performed in a way alternating and repeated 10 times and do bed rest . For time implementation that is 3 times practice *range of motion* (ROM) and bed rest.

5. Evaluation Nursing

Evaluation For diagnosis intolerance activity , after given action nursing with 3 times practice *range of motion* (ROM) of the extremities top and bottom obtained response client that is weak reduced . Day 1 strength muscle extremities on right 3 and left 3. Extremities lower right 2 and left 2. Day 2 strength muscle extremities on right 3 and left 3, extremities lower right 2 and left 2. Day 3 strength muscle extremities on right 4 and left 4, extremities lower right 3 and left 3

DISCUSSION

Study results case This show that subject studies case feel weak , there is wound ulcer diabetic post op debridement , activity all assisted . Subject studies case own complaint there is wound in the part extremities lower precisely on the soles of the feet right . Factor main reason emergence ulcer diabeticum in diabetes mellitus sufferers due to existence increase sugar content in blood , so that will become reason disturbance neuropathy and blood vessels blood . Neuropathy , both neuropathy sensory and motor will result in various changes in the skin and muscles that will then cause occurrence change

distribution pressure on the soles of the feet and so on will make things easier occurrence ulcers in diabetes mellitus sufferers (Wijaya, et al. 2015).

Assessment is step main from the nursing process that is Where nurse apply knowledge and experience For collect data on subjects studies case . Accurate and systematic data collection about need subject studies case can increase effectiveness care nursing care provided (Wijaya, et al . 2015).

The study was conducted on the subject studies case on May 2 , 2025 , namely with anamnesis or interview in a way directly on the patient , examination physical examination supporting data . From all of the data so writer get focus data as following : moment done study of the subject studies case namely to Mrs. K feel weak , there is wound ulcer wrapping bandage on the right leg , wound diameter not enough more than 4-5 cm, activity assisted .

Diagnosis nursing is the process of analyzing subjective and objective data that has been obtained at the stage assessment For uphold problem nursing so that become diagnosis nursing . Diagnosis nursing involving How method think complex about the data obtained in the study conducted .

Diagnosis nursing on the subject studies case the with review existing theories is intolerance activity . Diagnosis nursing the formulated based on minor characteristics , namely subject studies case feel weak , limp , condition clinical related there is disturbance metabolic namely type 2 diabetes mellitus with ulcer Diabetic in the right foot . (SDKI DPP PPNI Working Group Team , 2017).

Plan action nursing care provided as following that is identification disturbance function body that results in tired , do it exercise range passive ROM movement and/ or active , recommend bed rest . Plan action nursing care carried out in cases the use increase ability do activity . Intolerance activity is insufficiency energy For do activity daily (SDKI DPP PPNI Working Group Team, 2017). Causes occurrence intolerance activity among them is imbalance between supply and demand oxygen , bed rest , weakness , immobility , as well style life monotonous (SDKI DPP PPNI Working Group Team, 2017). Causes occurrence intolerance activity in Diabetes Mellitus type II , namely Because imbalance between supply and demand oxygen to distal direction .

Implementation exercise *range of motion* (ROM) of the extremities on lower with movement flexion , extension , dorsiflexion , plantarflexion . ROM actions are performed in a way alternating and repeated 10 times and do bed rest . For time implementation that is 3 times practice *Range of motion* (ROM) and bed rest. External *Range of Motion* (ROM) lower This is one of the activities carried out by diabetes mellitus sufferers to prevent even help launch circulation blood in the legs, repair circulation blood , increase strength muscle calves and thighs , as well as overcome limitations movement joints (Herliawati , 2019).

Research results were also presented by (Ratnasari , D. 2014) who explained that *Range of Motion (ROM) exercises* on the extremities can influence healing ulcer diabetic . When done exercise *range of motion* (ROM) of the extremities can influence perfusion peripherals that can cause diffusion oxygen and nutrients area ulcer adequate so that influence repair ulcer diabetic . Disorders of the blood vessels arteries peripheral DM sufferers can experience diabetic foot ulcers caused by dams consequence static flow in the veins, with he did *range of motion* (ROM) of the extremities lower so happen contraction and relaxation muscles extremities down . Dorsiflexion movement with move soles of the feet direction body part on whereas plantar flexion movement with move soles of the feet direction lower will increase circulation blood to peripheral and will speed up the healing process wound due to the healing process wound one of them influenced by the circulation that carries oxygen and nutrition . smooth flow blood to peripheral very much important

especially in patients diabetic foot ulcers , because relate with improving the healing process wounds and improve muscles in the extremities (Pebrianti , 2018).

Study results case show that exercise *range of motion* (ROM) capable increase strength the original muscle extremities on right and left 3, extremities lower right and left 2 increase become extremities on right and left 4, extremities lower right and left 3. *Range of motion* (ROM) can also be speed up the healing process ulcer diabetic . Research results The same thing was also conveyed by (Nugroho, et al. 2018) who explained that exercise *Range of Motion* (ROM) of the extremities can influence healing ulcer diabetic and improve strength muscles . When done exercise *range of motion* (ROM) of the extremities can launch circulation so that impact positive For reduce emergence ulcers and good in the healing process ulcer diabetic.

CONCLUSION

Based on results studies the case that was done , then conclusion from writer is exercise *range of motion* (ROM) of the extremities effective For increase strength muscle clients and healing ulcer diabetic in patients with type II diabetes mellitus , so that problem intolerance activity in patients can resolved part for 3 days . Based on results studies case This expected nurse can carry out ROM actions in patients with diabetes mellitus who experience ulcer diabetic For optimize the healing process wounds and improvements muscle client .

REFERENCES

- American Diabetes Association. (2024). The Big Picture: Checking Your Blood Glucose. <https://diabetes.org/living-with-diabetes/treatment-care/checking-your-blood-sugar>
- Provincial Health Office Central Java . (2022). Provincial Health Profile Central Java 2019 .
- Herliawati . (2019). Sensitivity Of The Feet Of Diabetes Mellitus Patients Between Two Treatments. *Journal Nursing Sriwijaya* , 6(2355).
- Herliawati . (2019). *Foot Sensitivity of Diabetes Mellitus Sufferers Between Two Treatment* . *Journal Nursing Sriwijaya*.https://ejournal.unsri.ac.id/index.php/jk_sriwijaya/article/view/7651/3841
- International Diabetes Federation. (2021). IDF Diabetes Atlas 10th edition. IDF 2021. <http://diabetesatlas.org> (accessed July 5 , 2025)
- International Diabetes Federation. (2021). IDF Diabetes Atlas 10th edition. IDF 2021. <http://diabetesatlas.org> (accessed July 10 , 2025)
- Ministry of Health of the Republic of Indonesia (2022) diabetes mellitus is problem we-yankes Ministry of Health . https://yankes.kemkes.go.id/view_artikel/1131/diabetes-melitus-adalah-our-problems
- Kumalasari , et al . (2024). *Nursing Textbook Medical Surgery 1*. Jambi: Sonpedia Publishing Indonesia
- Pebrianti , S. (2018). *Buerger Allen Exercise and Ankle Brachial Index (ABI) in Patients Diabetic Foot Ulcers* . *Indonesian Journal of Nursing Sciences & Practice*. <https://jurnal.umj.ac.id/index.php/ijnsp/article/view/2710/2323>
- PERKENI. (2021). *Guidelines Management and Prevention of Diabetes Mellitus Type 2 Adults in Indonesia (1st ed.)* . PB. PERKENI. <https://pbperkeni.or.id/unduh>
- R atnasari , D. (2014). *The Effect of Range of Motion (ROM) Exercises on Lower Extremities Repair Diabetic Ulcers in Type 2 Diabetes Mellitus Patients* . *Journal Medica Scholar* . https://scholar.google.co.id/scholar?hl=id&as_sdt=0%2C5&q

- Working Group Team of the DPP PPNI. (2016). *Standards Diagnosis Indonesian Nursing* . Jakarta : Council Central Executive Board of the Association Indonesian National Nurse
- Wijaya, AS, & Putri, Y. M. (2015). *Nursing Medical Surgery Mold First* . Yogyakarta: Nuha Medica
- Wijaya, NIMS, & Kep , M. (2018). *Wound Care With Approach Multidisciplinary* . Yogyakarta: Andi
- World Health Organization. (2022). Diabetes [Internet]. [cited May 12, 2025]. Available from : <https://www.who.int/news-room/factsheets/detail/diabetes>