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Research Article

Case of a 33-Year-Old Woman with Diabetes, Hypertension, Anemia, UTI, and Nephrotic Syndrome Complications

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Abstract: Pregnancy is a physiological condition in which a fetus develops in a woman's uterus. In the third trimester, pregnant women often experience discomfort such as lower back pain due to the enlarged uterus, which causes changes in posture, particularly an enlarged spine (hyperlordosis). Mrs. N is one of the pregnant women who came to PMB Anisa Mauliddina Sleman with complaints of lower back pain in her third trimester. In this case, midwives play a crucial role in helping alleviate discomfort in pregnant women, one of which is through interventions such as prenatal exercises using a gym ball. Objective: To be able to provide prenatal exercise care with a gym ball to Mrs. N during midwifery care during pregnancy at Independent Midwife Practice Anisa Mauliddina. Methode:The type of research method used is descriptive analytic method with a case study approach. This research instrument used the results of examinations, observations or observations of the author, interviews with clients and supporting data listed in the maternal and child health book owned by the client. The results of research on pain on Ny. N after doing senam gymball 10-15 minutes once every 3 days for 3 days it decreased, starting from the first day pain scale 6 to 2 on day 6. There was a decrease in pain intensity after doing pregnancy exercises with a gym ball on Mrs. N, who was pregnant in the third trimester at Independent Midwife Practice Anisa Mauliddina Godean Sleman.

Keywords: Type 2 diabetes; hypertensive urgency; anemia; nephrotic syndrome; UTI

1. Introduction

Diabetes mellitus (DM) is one of the most prevalent chronic metabolic disorders worldwide, characterized by elevated blood glucose levels due to impaired insulin secretion, insulin resistance, or a combination of both. According to a 2021 report by the International Diabetes Federation (IDF), the number of DM sufferers globally has exceeded 537 million adults and is predicted to increase to 643 million by 2030. In Indonesia, according to the 2018 Basic Health Research (Riskesdas), the prevalence of DM in the population aged 15 years and above reached 10.9% and shows an increasing trend. Type 2 DM is the most common form, closely associated with metabolic syndrome, while type 1 DM is autoimmune and requires lifelong insulin.(Sun et al., 2022).

In clinical practice, type 2 diabetes is often found together with other conditions such as hypertension, anemia, nephrotic syndrome, and urinary tract infections (UTIs), especially in patients with chronic kidney disease (CKD).(Jay, 2009)The close interrelationship between these five conditions reflects the complexity of the pathophysiological mechanisms and increases the risk of multisystem complications and death. Globally, more than 10% of the adult population is now diagnosed with type 2 diabetes, which is the leading

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cause of CKD through diabetic nephropathy, characterized by glomerular damage and persistent proteinuria. Over time, this condition can progress to nephrotic syndrome, characterized by massive proteinuria, hypoalbuminemia, and edema.(Rivandi & Yonata, 2015).

Hypertension, which affects about one-third of the adult population, also contributes significantly to the progression of CKD.(Ku et al., 2019)The combination of uncontrolled hypertension and chronic hyperglycemia accelerates kidney damage and exacerbates proteinuria. Hypertension in patients with CKD is often resistant and requires intensive management. A patient's blood pressure >200 mmHg represents a hypertensive urgency with a high risk of developing acute kidney failure.(Fradina & Nugroho, 2020).

Decreased kidney function also impacts erythropoietin production, resulting in anemia of chronic disease, which is generally normochromic normocytic or microcytic hypochromic.(Hadiyanto et al., 2018)This anemia worsens functional capacity and increases mortality, especially if accompanied by iron deficiency, chronic systemic inflammation, and malnutrition, as seen in patients with hemoglobin levels below 8 g/dL.(Badura et al., 2024).

UTI is a complication that often occurs in DM and CKD sufferers due to decreased immunity, urinary retention, and the use of catheters.(Scherberich et al., 2021)This infection can worsen kidney function and trigger urosepsis if not treated promptly. Symptoms such as decreased urine volume, edema, and pruritus are early signs of toxic metabolite retention due to decreased kidney function.

Given the close relationship between DM, hypertension, CKD, nephrotic syndrome, anemia, and UTI, management of patients with these comorbidities must be holistic and involve a multidisciplinary approach. Recommendations from recent clinical guidelines such as KDIGO 2024, ADA Standards of Care 2025, and ESC/ESH 2023 suggest simultaneous management of blood pressure, blood glucose, anemia, and proteinuria to slow kidney damage, reduce cardiovascular risk, and prevent premature death.(Rao et al., 2025).

2. Literature Review

The patient is a woman named Mrs. M, aged 33 years, born on October 3, 1991, and domiciled in Rheng Bluek, Meurah Mulia, North Aceh Regency. The patient is of Acehnese ethnicity, Muslim, and works as a housewife (IRT). She was admitted to Cut Meutia General Hospital on June 1, 2025 and was treated until June 7, 2025. The primary examination was conducted on June 4, 2025. The patient is registered with medical record number 02.84.69.

The patient's primary complaint was weakness, which had persisted for a week and worsened two days prior to admission. This complaint was accompanied by various other symptoms, including abdominal pain, nausea, vomiting up to 10 times per day, headache, swelling throughout the body, numbness in both hands and feet, itching throughout the body, a red rash on the face, joint pain, weight gain, decreased appetite, and decreased urinary frequency. The patient also experienced sleep disturbances. According to the Visual Analog Scale (VAS) pain scale, the pain felt was at an 8, indicating severe pain.

The patient has a similar history and was treated at Cut Meutia General Hospital in late 2024. He has been diagnosed with stage IV chronic kidney disease (CKD). He also has a history of type 2 diabetes mellitus for the past 10 years. His current therapy includes subcutaneous insulin Lantus 26 IU every night and insulin Apidra 14 IU three times daily. For hypertension, the patient takes valsartan 160 mg, amlodipine 10 mg, and bisoprolol 5 mg. Additional medications include domperidone, omeprazole, sucralfate syrup, and furosemide. His family history indicates that the patient's mother also suffers from the same condition. The patient comes from a family with a lower-middle socioeconomic background, and his treatment is covered by the BPJS program.

On physical examination on June 4, 2025, the patient appeared to be in a serious condition with a compos mentis level of consciousness. Vital signs showed a blood pressure of 210/120 mmHg, a pulse rate of 83 beats per minute (regular, with adequate volume and pressure), a respiratory rate of 20 breaths per minute without a Kussmaul breathing pattern, a body temperature of 36.7°C, and a VAS score of 3 upon examination.

Based on anthropometry, the patient weighed 64 kg and was 150 cm tall, with a body mass index (BMI) of 28.4 kg/m², indicating overweight. The extremities appeared warm with positive pitting edema and no cyanosis. Neurological examination revealed normal motor tone and reflexes, and no pathological reflexes were found.

Hematology examination revealed microcytic hypochromic anemia, with a hemoglobin level as low as 7.9 g/dL and MCV <70 fL, accompanied by an increase in platelets to 574,000/μL (thrombocytosis). Peripheral blood morphology showed hypochromia, microcytosis, and mild poikilocytosis, supporting the diagnosis of anemia of chronic disease or iron deficiency anemia. A random blood glucose test was high (301 mg/dL), indicating uncontrolled hyperglycemia.

Renal function tests revealed a urea of 63.4 mg/dL and creatinine of 2.8 mg/dL, indicating decreased renal function. Dyslipidemia was also found with elevated total cholesterol (256.9 mg/dL), triglycerides (255.1 mg/dL), and LDL (176 mg/dL), and decreased HDL (32.4 mg/dL). Urinalysis revealed positive proteinuria (2+), glucosuria (4+), positive leukocytes (1+), and positive hyaline casts and bacteria, suggesting possible urinary tract infection and diabetic kidney damage. The urine sediment showed 10–15 leukocytes per field of view.

An erythrocyte sedimentation rate (ESR) test also showed a positive result, with an elevated ESR of 24.59 mm/hour, indicating a possible inflammatory process or chronic disease. An electrocardiogram (ECG) showed sinus tachycardia with a heart rate of 103 beats per minute, a response to the ongoing systemic condition.

Based on the history, physical examination, and supporting examinations, the working diagnosis in this patient is uncontrolled type 2 diabetes mellitus, with consistently high random glycemia (>300 mg/dL) and associated metabolic complications. Differential diagnoses include type 1 diabetes and MODY (Maturity-Onset Diabetes of the Young). The patient was also diagnosed with hypertensive urgency, with blood pressure ranging

from 189–210 mmHg, and the differential diagnosis was secondary hypertension. Microcytic hypochromic anemia was also found, with a hemoglobin level as low as 7.9 g/dL and an MCV value <70 fL, which supports the suspicion of iron deficiency anemia, with possible differentials of anemia of chronic disease or thalassemia. Based on urinalysis findings and clinical symptoms, the patient has a urinary tract infection, with a differential diagnosis of pyelonephritis and urethritis. Furthermore, based on proteinuria, edema, and hypoproteinemia, there is suspicion of nephrotic syndrome, with a differential diagnosis of lupus nephritis.

Patients receive a combination of non-pharmacological and pharmacological therapies. Non-pharmacological measures include bed rest, regular monitoring of blood glucose and blood pressure levels, nutritional therapy, and education about the disease and long-term care.

Pharmacological therapy included IVFD Ringer's Lactate 20 gtt/minute, insulin Apidra and Lantus or Levemir with adjusted subcutaneous doses daily, antihypertensive medications such as valsartan, amlodipine, and Perdipine (injected intravenously with a syringe pump), and atorvastatin for dyslipidemia. Two packs of packed red blood cells (PRBC) were also administered, along with furosemide premedication to reduce the risk of fluid overload. The patient also received symptomatic therapy such as ondansetron, metoclopramide, and omeprazole. Oral antibiotics in the form of Urinter were administered to treat urinary tract infections. The patient also received the phosphate binder Bicnat and was scheduled for further monitoring and evaluation by a kidney specialist.

3. Proposed Method

Mrs. M, a 33-year-old woman with a history of chronic type II diabetes mellitus, hypertensive urgency, and stage IV chronic kidney disease (CKD), presented to the emergency department with a chief complaint of weakness that had persisted for one week and worsened in the two days prior to admission. This complaint was accompanied by nausea, vomiting, abdominal pain, headache, generalized swelling (anasarca), numbness in the hands and feet, generalized itching, a red rash on the face, joint pain, decreased appetite, and decreased urine output. This combination of symptoms reflects clinical decompensation of advanced stage chronic kidney disease, with typical manifestations such as uremic symptoms (nausea, vomiting, pruritus), fluid retention (generalized edema), and metabolic complications such as metabolic acidosis and electrolyte disturbances. Headache can be a sign of uncontrolled hypertension, while numbness suggests the possibility of peripheral neuropathy due to microvascular complications of diabetes, or uremic neuropathy.(Putri et al., 2020; Suyanto, 2017). Complaints of decreased urine output and edema indicate a severe decrease in glomerular filtration function.(Ishimitsu et al., 2017)The presence of a facial rash and joint pain also raises suspicion of the possibility of a systemic autoimmune disease such as systemic lupus erythematosus (SLE) which can

cause lupus nephritis, although this requires further testing for confirmation.(Tanzilia et al., 2021).

The patient's history of diabetes and hypertension, along with treatment from an internist, indicates that the patient is in the advanced stages of chronic disease complications. Type II diabetes mellitus and hypertension are the two main causes of diabetic nephropathy and hypertensive glomerulosclerosis, which synergistically accelerate the decline in kidney function and the progression to end-stage CKD.(Susanti et al., 2024). Furthermore, a family history (mother) of diabetes and hypertension confirms the role of genetic factors in the development of metabolic syndrome in the patient. Socially, the patient is from a lower-middle economic class and uses BPJS health insurance, which is an important consideration in determining access to long-term therapy, including the need for hemodialysis, glycemic monitoring, and nutritional education and support.

When compared with the current clinical guidelines from the American Diabetes Association (ADA), Joint National Committee 8 (JNC 8), and KDIGO, this patient meets the criteria for further intervention. According to KDIGO 2022, patients with stage IV CKD who have demonstrated uremic symptoms, fluid retention, and progressive renal function decline should be evaluated for initiation of renal replacement therapy (RRT) such as hemodialysis.(KDIGO, 2025). Furthermore, strict blood pressure and blood glucose control should be pursued with individualized targets (<130/80 mmHg and HbA1c around 7%) to prevent further progression and cardiovascular complications. In these cases, a multidisciplinary approach involving internists, nephrologists, clinical nutritionists, and social workers is essential to ensure holistic and sustainable patient care.

On physical examination on June 4, 2025, Mrs. M appeared to be in a serious condition with compos mentis consciousness, indicating that despite severe systemic disorders, cerebral function was not impaired. Her blood pressure was very high at 210/120 mmHg, which is categorized as a hypertensive crisis or hypertensive emergency according to JNC 8, with a high risk of target organ damage, including the kidneys. (Olin & Pharm, 2018)A regular pulse of 83 beats/minute and respiratory rate of 20 breaths/minute are within normal limits, while a body temperature of 36.7°C indicates the absence of acute systemic infection at the time of examination. Physical signs such as pale conjunctivae, dry and pale lips, and generalized edema indicate manifestations of anemia and systemic fluid retention typical of advanced chronic kidney disease (CKD). The facial red rash and epigastric tenderness also suggest the possibility of broader systemic involvement, such as an autoimmune disorder (SLE), although a definitive diagnosis requires further immunological evaluation.

Laboratory tests revealed microcytic hypochromic anemia with a hemoglobin level of 7.9 g/dL, consistent with anemia of chronic disease and iron deficiency—the two most common causes of anemia in patients with CKD. Furthermore, elevated urea (63.44 mg/dL) and creatinine (2.8 mg/dL) indicated a significant decrease in the glomerular filtration rate (eGFR), supporting a diagnosis of stage IV CKD according to the KDIGO

criteria. A high random glucose level (301 mg/dL) indicated that the patient's glycemic control was very poor, and this hyperglycemia contributed to worsening kidney function and increased the risk of microvascular and macrovascular complications. The combination of hypertensive urgency, hyperglycemia, severe anemia, and impaired kidney function indicated that the patient was experiencing an exacerbation of chronic kidney disease, with clinical manifestations including hypertensive crisis, severe anemia, and secondary metabolic complications of uncontrolled diabetes.

This condition requires comprehensive and intensive management, including volume and fluid management to address fluid overload and prevent pulmonary edema, aggressive blood pressure control with appropriate combination antihypertensives (e.g., CCBs and loop diuretics), and strict blood glucose control with insulin, especially since oral antidiabetic medications are often contraindicated in advanced CKD. Blood transfusions may be necessary if anemia causes symptoms or hemoglobin levels decline further. Furthermore, patients require further evaluation for nutritional status, electrolyte balance, and a plan for renal replacement therapy (RRT), such as hemodialysis, if clinical indications such as severe uremia, electrolyte disturbances unresponsive to conservative therapy, or a decline in glomerular filtration rate approaching 15 mL/min/1.73 m^2 arise. An interdisciplinary approach by the nephrology, internal medicine, clinical nutrition, and social care teams is essential for long-term planning in these patients.

4. Conclusions

A 33-year-old female patient was reported by her family to the Emergency Department of Cut Meutia Regional General Hospital with complaints since 1 week ago and worsened in 2 days of hospitalization. Complaints of weakness made the patient only able to lie in bed. Complaints of weakness were reduced if the patient rested in bed and worsened when going to the bathroom. The patient also complained of nausea and vomiting with a frequency of ± 10x / day, abdominal pain, headache, red rash on the face felt since 2 days before admission to the hospital, numbness in both feet and hands and itching all over the body felt by the patient for the past few years, joint pain often felt since the past year, swelling all over the body that occurred since 3 days before admission to the hospital caused the patient's weight to increase. The patient complained of having no appetite and difficulty sleeping.

On physical examination, compos mentis consciousness was found, appeared seriously ill, blood pressure 210/110 mmHg, pulse rate 83x/minute, regular, sufficient volume and pressure, respiratory rate 20x/minute, body temperature 36.7 C, nutritional status overweight, anemic conjunctiva, pale and dry lips, edema throughout the body. On laboratory examination, hemoglobin was 8.3 g/dL, hematocrit 23.9%, leukocytes 7.91 thousand/µL, platelets 574 thousand/µL, erythrocytes 3.5 million/mm3, urea 63.4 mg/dL, creatinine 2.8 mg/dL, uric acid 5.95 mg/dL, and blood glucose 301 mg/dL. Peripheral blood morphology showed the impression of microcytic hypochromic anemia and thrombocytosis. Urinalysis results showed the presence of urine protein +2, glucose 4+, bacteria +1, and positive hyaline

cylinders. An erythrocyte sedimentation rate examination revealed an increased erythrocyte sedimentation rate. An abdominal ultrasound examination revealed no abnormalities in the liver, gallbladder, pancreas, spleen, bilateral kidneys, or urinary bladder.

Based on the examination and supporting findings, the patient was diagnosed with uncontrolled type 2 diabetes mellitus, hypertensive urgency, microcytic hypochromic anemia, urinary tract infection, and nephrotic syndrome, with a differential diagnosis of lupus nephritis not yet ruled out. Management was continued based on the patient's complaints. The patient was discharged home after the sixth day of treatment.

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