

Nursing assessment problem identification case study mr lim



The medical record also shows that Mr. Lim has Type 2 diabetes (DM). His blood glucose level is 6.5 mmol/L which according to Changi General Hospital (2009), is well-controlled for a diabetic patient. DM may be the major cause of Mr. Lim's development of chronic renal failure (CRF) as suggested by Daniels and Hostetter (1992). Diabetes results in kidney damage by accelerating atherosclerosis and inducing hypertension (Rachmani, & Ravid, 2003). A recent research links diabetes with atherosclerosis by the large amount of advanced glycation end products produced in diabetic patients that suppress the enzymes capable of dilating blood vessels and inhibiting inflammation of blood vessels (University of Rochester Medical Center, 2008, March 17). Inflammation of the glomerulus can result in hardening with scar formation, inducing tubulointerstitial injury in diabetic nephropathy causing it to progress into CRF (Brosius et al, 2008).

The medical record shows that he has history of hypertension. On assessment, he exhibits high blood pressure (B/P) of 165/105, jugular venous distension (JVD), bilateral lower limb edema and change in skin turgor. Hypertensive nephrosclerosis is the second most common cause of CRF after DM. It causes CRF by increasing pressure in the arterial wall leading to stiffening and thickening of the afferent arteriolar and subsequently damages the glomerulus (Hill, 2008). However, hypertension as the only cause of CRF only occurs in those who are genetically predisposed (Freeman, & Sedor, 2008). The other way round, Mr. Lim's elevated B/P could be due to increased cardiac output associated with sodium and fluid retention as a complication of CRF (Hortom-Szar, 2007). Hypertension is exacerbated in CRF because damaged kidney is no longer able to maintain electrolyte

balance and excreting of sodium is impaired due to damaged nephrons, leading to more amount of water reabsorbed, and hence hypertension and edema (Moorthy, 2009).

As a result of fluid retention, Mr. Lim may report experiencing breathlessness and paroxysmal nocturnal dyspnea. On assessment, he exhibits tachypnea with increased respiration rate of 22/min, may be accompanied with crackles. This is associated to decreased oxygen saturation of 95% leading to an increased in respiratory rate as the body attempts to compensate by exhaling more carbon dioxide (Broscious, & Castagnola, 2006). Left ventricular heart failure can also occur as a result of compensatory mechanism to reduced cardiac output in fluid overload (Thomas, 2008).

The blood test results show increase in both creatinine (Cr) to 1.7mg/dL more than normal range of 0.6-1.3mg/dL and blood urea nitrogen (BUN) to 28mg/dL, more than normal range of 10-20mg/dL, indicating decrease in renal ability to excrete waste product of metabolism (Hattersley, & Mahon, 2002). Estimation of glomerular filtration rate (eGFR) is a better indicator of kidney function than serum creatinine level as it also takes into consideration of individual's body mass according to race (Thomas, 2008). Mr. Lim's eGFR of 41 indicates stage 3 kidney damage.

Mr Lim's hemoglobin level of 12g/dL falls in the normal range of 12-18g/dL but in the lower end as anemia only starts to occur in state 3 CRF as suggested by Moorthy (2009). He is likely to become anemic if left uncontrolled as CRF progression results in fewer production of erythropoietin leading to a shortage of red blood cells (Moorthy, 2009).

2. Sleeping

Mr. Lim reports insomnia. It could be due to pain, itchy skin, breathlessness or feelings of powerless, anxiety and financial stress. Depression and anxiety are also hurdles to Mr. Lim's compliance to medical and dietary management of CKF as suggested by Kopple and Massry (2004). He may find life meaningless when challenged with poor health leading to spiritual deprivation and lack of impetus to improve his conditions.

3. Maintaining a safe environment

Mr. Lim exhibits hyperthermia with temperature 37. 8°C, higher than normal temperature of 37. 0°C. Mr. Lim should be assessed for other signs of infection such as chills, aches, nausea, vomiting and cloudy urine caused by pus or bacteria. This is important because indwelling catheter and intravenous line provide entrance for harmful microorganisms and infection is likely as his immune system is suppressed due to disease progression (Heinzelmann et al, 1999). Lower leg edema also increases Mr. Lim's risk for infection by ulcer development (Stalbow, 2004).

Mr. Lim may complain of sudden onset of itching skin. According to Brewster (1996), Mr. Lim has a high risk of getting severe uremic pruritus because of his gender and high BUN level. Pruritus is caused by excretion of calcium, phosphorus and urea in the skin (Thomas, 2008). Assessment may reveal scratch marks. Scratching can cause bleeding and bruising in Mr. Lim because of capillary permeability and altered clotting functions due to disease progression (Thomas, 2008).

A nurse should assess Mr. Lim's risk for injury associated with uremia induced central nervous system disorder. Mr. Lim may exhibit mental disabilities such as poor memory, loss of concentration and slower mental ability (Moorthy, 2007). Mr. Lim has high risk for fall if his mental status is altered.

A nurse should also assess for signs of head injury associated with Mr. Lim's fall.

4. Pain

Mr. Lim reports a pain score of 4. He may describe flank pain as dull, aching and steady pain at the posterior costal margin. He may also complain of leg pain due to edema. Joint pain could also occur due to renal bone disease resulted from releasing of calcium may be released from bone to compensate decreased serum calcium (Broscious, & Castagnola, 2006). Serum calcium level decreased due to albumin loss in CRF because some calcium is bind to protein. CRF also reduces vitamin D synthesis, resulting in less calcium absorption in the gut. He exhibits muscular spasm and tetany due to hypocalcemia (Moorthy, 2007).

5. Eating and drinking

Mr. Lim may report loss of appetite due to metallic taste in mouth and prescribed unpalatable renal diet. Weight measurement may show rapid weight loss. Mr. Lim also requires a high-calcium diet to replace low serum calcium level.

6. Communication

Effective patient education may be impeded by his lack of attention and fatigue as treatment requires a lot of patient participation. Ineffective communication would also prevent patient from discussing his concerns with his sons, making him feel more helpless and powerless.

7. Personal cleansing and dressing

Mr. Lim reports extreme fatigue, weakness resulting in difficulty performing the activities of daily living. On assessment, Mr. Lim exhibits unkempt appearance and decreased range of motion especially of lower extremities.

8. Mobilising

Mr. Lim may have difficulties ambulating due to pain from lower limbs swelling and renal bone disease. It could also be due to Wittmaack-Ekbom's syndrome and paresthesia of feet associated with sensory neuropathy from uremia (Moorthy, 2008).

9. Eliminating

Mr. Lim reports oliguria for last 24 hours and his urine output is measured to be 20 to 25ml/hour, below than normal volume of 33 to 84ml/hour suggested by Dugdale (2009). As a result, his urine colour appears dark due to decrease urine excretion. Urine output decreases because kidney is unable to excrete water due to damaged nephrons with decreased GFR (Broscious, & Castagnola, 2006). Weight measurement may show rapid weight gain. However, fluctuation of weight may not occur due to malnutrition.

Mr. Lim may exhibit hematemesis and 'tarry' stool associated with gastrointestinal bleeding due to irritation by ammonia which is released in the gut by the breakdown of urea (Thomas, 2008).

Mr. Lim may report difficulty in passing motion. Constipation occurs in patients with CRF as fluid intake is restricted and patient is inactive due to fatigue (Thomas, 2008).

Nursing Diagnosis

1. Fluid overload related to inability of the kidneys to produce and eliminate urine as evidenced by high B/P of 165/105, edema and decreased urine output to 20 to 25mL/hour
2. Powerlessness related to lack of understanding of diagnosis and treatment plan and feeling of loss of control as evidenced by patient verbalization of financial concerns and appearing anxious and worried.
3. Risk for imbalanced nutrition: less than body requirements, related to decreased calcium absorption and decreased oral intake associated with loss of appetite and prescribed unpalatable diet as evidenced by low serum calcium of 2.0mg/dL, weight loss and patient verbalizes lack of energy.
4. Pain
5. Activity intolerance
6. Knowledge deficit
7. Risk for impaired skin integrity

8. Risk for prolonged bleeding

9. Risk for infection

10. Risk for fall

C) Nursing Interventions

1. Fluid overload

A nurse should monitor circulating volume by evaluating Mr. Lim's daily weight, fluid intake and output records, JVD and circumference of edematous parts and vital signs, particularly blood pressure and pulse. Nursing care should also include assessing for crackle and S3 heart sound. Close monitoring allows the nurse to consult a physician if signs and symptoms of fluid overload worsen so interventions can be taken to prevent complications such as pulmonary edema or cardiac failure (Martchev, D).

Medications such as diuretics which increase excretion of urine and arterial vasodilators to increase renal perfusion should be administered. This is important as controlling of hypertension and primary diseases are the only interventions proven effective in preventing progression of CRF (Thomas, 2008). Since Mr. Lim is diabetic, he requires B/P lower than 130/88mmHg to achieve same benefits as non-diabetic patients whose target B/P is 140/85mmHg (as cited in Thomas, 2008). However, Mr. Lim should not be intensely treated to become edema-free because of the danger of hypotension (Carpenito-Moyet, 2009).

A nurse should collaborate with dietician in planning a renal diet with strict fluid restrictions, low sodium and low protein with high biological protein and

encourage Mr. Lim to adhere to the diet. The amount of fluid given to Mr. Lim is restricted to 24-hour urine output plus 500mL to replace insensible loss to maintain fluid balance. Low-sodium diet is beneficial to prevent further fluid retention. High biological proteins from meats, cheese and milk provide amino acids essential for cell growth and repair but release less BUN during metabolism (Carpenito-Moyet, 2009).

A nurse should assist Mr. Lim to sit in a semi-Fowler position since not contraindicated and elevate his feet when sitting up. Literature review shows that this increases lung volume, allowing him to breathe better and reduces venous return to the heart and thus decreases blood pressure (Bixby, 2005).

Expected outcomes: During treatment in hospital, Mr. Lim does not develop complications of CRF. Before discharge, Mr. Lim's B/P returns to his baseline prior to onset of renal failure, his edema is decreased and his electrolytes are normal or at baseline.

2. Powerlessness

Since Mr. Lim expresses financial concerns, the nurse can inform Mr. Lim and his family that he is included in the Medisave for Chronic Disease Management Programme as he suffers from DM and hypertension which are covered in the programme, as such, he can activate Medisave to pay most of the bill when he visits general practitioner which can total up to \$150 per visit (Health Professionals Portal, 2008).

A nurse should encourage Mr. Lim to verbalize his concerns about potential changes in body image, life style and express feelings and frustrations.

Patients with CRF feel inferior due to a restricted life style and dependence on others (as cited in Carpenito-Moyet, 2009). Effective communication between the nurse and the patient is necessary for a successful discharge planning including reduced anxiety and better quality of life (Carroll, & Dowling, 2007).

A nurse should and tell him not to see himself as a victim of disease as he has the capability to control the disease progression by complying with diet, fluid restriction and follow-up care. The nurse should provide adequate information about the multiple facets of the illness and therapy options encourage him to make decisions with the new knowledge. Self-worth and dignity can be enhanced when patient actively participates in decision making. Literature review shows that increasing patient's self-worth is an effective treatment for depression in elderly (Ku et al, 2008).

A nurse should explore the effects of the disease on Mr. Lim's family as chronic illness has negative impact for the whole family, not just the individual with the disease.

Expected outcomes: The nurse provides a holistic care to Mr. Lim and his family. Mr. Lim participates actively in decision-making for plan of care and identifies personal strengths and factors he can control and as a result is highly compliant to the treatment.

3. Risk for imbalanced nutrition

A nurse should explain to Mr. Lim and his family about the reasons for dietary and fluid restrictions. Interaction between patient and nurse and

family can enhance adherence to treatment by empowering them with knowledge (Kopple, & Massry, 2004).

The nurse should encourage good oral hygiene before and after meals and provide a pleasant environment during mealtimes to stimulate appetite. The nurse should be aware that individual's cultural background influences his food choices and relationship between diet and health (Kopple, & Massry, 2004). He/she may discuss with Mr. Lim dietary options rather than restrictions as he might become discouraged if the diet is too restrictive and unpalatable (as cited in Kopple, & Massry, 2004).

A nurse can provide methods for Mr. Lim to relieve dry mouth with metallic taste and maintain fluid restriction as required by his condition. He/she can suggest Mr. Lim to take ice chips instead of water as one cup of ice equals only half cup of water and he can attain more satisfaction from ice as it stays in the mouth longer. He may also keep hard candy with him as it can alleviate dry mouth by stimulating saliva secretion. Frequent rinsing is also useful.

Administer vitamin D or calcium supplements as ordered. Calcium supplements can replace calcium and decrease risk of tetany. Vitamin D facilitates calcium reabsorption in the gut.

Expected outcomes: Mr. Lim understands the importance of adequate nutritional intake and complies with the prescribed dietary regime within 2 days. His calcium level increases after 1 week and he reports no muscular spasm and tetany. He maintains ideal weight and adequate nutrition during the hospital stay and after he is discharged.

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