Process Information

Cues below:

Normal cues (subjective & objective)	Abnormal cues (subjective & objective)

Normal cues:

Objective: Temperature 36.5 ˚C, normal blood glucose level at 4.7 mmol/l
Subjective: Normal abdomen and bowel sounds, normal gait, motor, and sensory functions

Abnormal cues:

Objective: High blood pressure at 170/100 mmHg, high heart rate at 118 bpm, high respiratory rate at 24 bpm, low SpO2 at 94% on 2L via NP, cardiomegaly, high jugular venous pressure (JVP), high capillary refill at 5 seconds, increased weight at 97 kg, fluid input 1672 ml and fluid output 200 ml
Subjective: Water jug is empty within just 2 hours of admission, pain provoked by exercise, pressure all over the chest when breathing, shortness of breath, murmurs heard over mitral valve, PMI is displaced laterally, bibasilar crackles on auscultation, production of pink-tinged frothy sputum, bilateral pitting edema

Relate & Infer

The patient has a past medical history of congestive cardiac failure (CCF), which explains most of his abnormal cues such as high blood pressure, high heart rate, chest pain, shortness of breath, and cardiomegaly. CCF is a condition where the heart does not pump blood efficiently due to the heart muscle's decreased ability to contract to its full capacity. Therefore, pumping of blood from the heart is slower and return of blood to the heart is faster causing it to become congested. It also causes a lower volume of oxygen-rich blood to reach the various tissues and organs of the body (Banasik and Copstead 2018).

In order to make up for this, the heart rate increases in order to bring down the high capillary refill time. Cardiomegaly occurs as the heart tries to make space for the extra blood. Increased effort of the heart to pump blood leads to heart palpitations and murmurs. Inability of the heart to pump enough blood can cause fluid buildup in the lungs leading to shortness of breath and a high respiratory rate. Congestion in the lungs can also lead to cough and production of sputum. His chest pain all over his upper body is also due to increased work of the heart muscle and can indicate that his condition is worsening (Banasik and Copstead 2018).

His respiratory symptoms of concern are high respiratory rate, shortness of breath, low SpO2, bibasilar crackles on auscultation, pressure in the chest when breathing, sputum production, and bilateral pitting edema. Presence of bibasilar crackles in the lungs is an indication that the lungs are filled with fluid, and it is also the reason for shortness of breath, chest pain, and cough. Pulmonary edema is a condition which often occurs in patients having congestive heart failure and is characterized by fluid collecting in the air sacs of the lungs. This increases the lung's work of getting in more oxygen which leads to pressure in the chest when breathing and shortness of breath. Also, as a consequence of pulmonary edema, less oxygen is available to the body which explains his tiredness, pain provoked by exercise, and difficulty in palpating peripheral pulses (Bullock and Hales 2019).

The patient has had an increase in weight of 3 kg within a week due to excessive fluid intake. This condition is known as fluid overload or hypervolemia, which can further exacerbate symptoms of high blood pressure, shortness of breath, cardiomegaly, and increased heart rate. It occurs due to abnormal kidney function wherein the kidneys retain more salt than normal, thereby increasing the body's sodium content, and causing the patient to take in more fluids. Hypervolemia is often a consequence of congestive heart failure, and is caused specifically due to problems with the right ventricle. It occurs because the heart's ability to pump sufficient blood to all parts of the body

declines, and the kidneys don't receive sufficient blood to carry out its normal functions. As a result, it retains salts and fluids in the body to maintain their balance. It can lead to edema or swelling on any part of the body including hands, legs, and face. The patient has pitting edema which means that when the region of the swelling is pressed, it leaves a pit or an indentation. The presence of extra fluid in the body can increase the heart's work of pumping blood thereby worsening the pre-existing heart failure in the patient. The extra fluid can also collect in the lungs leading to pulmonary edema, characterized by crackles and shortness of breath as described above (Norris 2020).

Predict – what might happen to Mr Jenkins without clinical intervention?

The patient is clearly experiencing a worsening of his congestive cardiac failure, and his other findings such as respiratory distress, pulmonary edema, and hypervolemia are all consequences of his primary condition. Without any clinical intervention, his condition will continue to deteriorate causing fluid buildup in vital organs such as the lungs. This might eventually lead to pericarditis, tissue breakdown, and decrease in bowel functions. If CCF is not treated promptly, the patient's skin may turn blue due to insufficient oxygen supplied by the lungs and the patient may suffer from bouts of fainting (Bullock and Hales 2019).

Nursing Diagnosis, Goals, Actions, Rationale and Evaluation

Nursing Diagnosis 1:
Fluid overload

Goals/ Desired Outcomes:
Patient has balanced fluid intake and output
Patient has stable weight
Patient has a urine output greater than or equal to 30 ml per hour
Patient has clear lung sounds upon auscultation

Related actions:
Action 1: Determine the underlying cause of fluid overload in the body.
Action 2: Regularly monitor weight, fluid intake, and fluid output in relation to diuretic therapy.
Action 3: Regularly monitor blood pressure and heart rate.
Action 4: Check for signs of edema, crackles in the lungs, and shortness of breath.
Action 5: Educate patient and family members regarding the causes and consequences of fluid overload.

Rationale:
Action 1: Determining the cause of fluid overload is important as it can help formulate appropriate interventions for treating fluid overload and preventing this condition in the future. Here, it is clear that fluid overload is a consequence of CCF; therefore, managing CCF appropriately can also prevent fluid overload in the future (Miller 2016).

Action 2: Monitoring weight is important as sudden increase in weight can indicate fluid retention. However, this should be considered along with the nutritional status as inadequate food intake can result in either no weight change or loss of weight which can be falsely construed as a sign of fluid balance in the body. Urine output should be considered along with the specifics of the diuretic medication being administered as some medicines may act faster than others in restoring fluid balance. In some cases, urinary catheters may also be used to check for the patient's response to diuretic therapy (Davies et al. 2019).

Action 3: High blood pressure and high heart rate are a sign of fluid overload, and these values coming down to normal can be an indirect indicator of fluid balance (Ekinci et al. 2018).

Action 4: Fluid accumulation in extravascular spaces can result in edema and fluid buildup in air

sacs of the lungs can cause crackles at the base of the lungs (Granado and Mehta 2016).

Action 5: As the patient and caregivers will be managing fluid intake in the future after discharge from the hospital, it is essential that they are aware of this condition as a consequence of CCF. This will enable them to closely monitor the patient's fluid intake and report any unusual increase in intake immediately (Frazee and Kashani 2016).

Evaluate outcomes

Fluid intake is decreased and urine output is increased.
Blood pressure and heart rate are reduced to normal.
Lungs are auscultated to see if crackles are no longer present.

Nursing Diagnosis 2:

Impaired gas exchange

Goals/Desired outcomes

Patient's respiratory rate, SpO2 level, and heart rate return to the normal range.
Patient does not show signs of respiratory distress such as shortness of breath.
Patient has clear lung sounds upon auscultation.

Related actions

Action 1: Assess the rate, depth, and effort of respiration, and also check for abnormal breathing patterns, nasal flaring, and use of accessory muscles for breathing.
Action 2: Auscultate the lungs for presence of adventitious sounds and assess the lungs for regions where there is decreased ventilation.
Action 3: Monitor blood pressure and heart rate.
Action 4: Monitor SpO2 levels using a pulse oximeter.
Action 5: Assist the patient in using an incentive spirometer to practice slow and deep breathing after confirming with the physician.

Rationale

Action 1: Gas exchange is often affected by breathing patterns that are rapid and shallow, and this can lead to hypoventilation. Hypoxia may be indicated by signs such as use of accessory muscles for breathing, an increase in respiration rate, abdominal breathing, and nasal flaring. Therefore, regular monitoring of respiratory indicators can help assess improvement in gas exchange in the patient (Rolfe 2019).

Action 2: Lung sounds are the best indicator of gas exchange, as clear lung sounds indicate normal respiration and presence of abnormal lung sounds indicate respiratory distress. If crackles and wheezes are heard, it may indicate airway obstruction, and if lung sounds are decreased, it may indicate poor ventilation (Schmidt 2020).

Action 3: Respiratory rate, heart rate, and blood pressure increase when the patient is suffering from hypoxia and hypercapnia. However, in severe cases of both these conditions, the heart rate and blood pressure can decrease resulting in dysrhythmia. Therefore, continual monitoring of these vital signs is essential as it can signal the patient's respiratory state (Sarkar et al. 2017).

Action 4: Evaluation of SpO2 levels using pulse oximetry can provide insights into the patient's oxygenation status. Normal SpO2 level is between 95% and 100%. If it falls below 90%, then it indicates significant problems with oxygenation, and finding this out at an early stage can provide enough time to start appropriate interventions (West et al. 2018).

Action 5: Use of an incentive spirometer can help prevent atelectasis, increase oxygenation, and promote deep inspiration (Yazdannik et al. 2016).

Evaluate Outcomes

Patient's vital signs such as respiratory rate, heart rate, and blood pressure are in the normal range.
Patient's SpO2 level is increased.
Patient's bilateral lung sounds are clear.
Patient is not short of breath while resting and with mild exercise.

Reflection

Evaluation of this case has helped put a lot of things in perspective in the area of nursing management. I have realized that it is extremely important to regularly monitor patients with potentially life-threatening conditions and co-morbidities. The vital signs of the patient are the first indication that something is wrong and it can also indicate that the patient is responding well to treatment. Therefore, appropriate and regular monitoring and recording of vital signs and other relevant indicators is extremely crucial for providing good quality care to a patient. This is also consistent with Standard 4 of NMBA (2016) which states that a nurse should be able to comprehensively conduct assessments and Standard 3 of NMBA (2016) which states that a nurse should maintain capability for practice.

Patients who suffer from multiple conditions such as congestive cardiac failure, pulmonary edema, and fluid overload need to be well-educated and informed about the potential complications of these conditions and consequences of not taking appropriate steps to prevent and manage them. As a nurse, it is my responsibility to communicate all the necessary details in a manner that the patient will understand and prepare a self-care plan that the patient will adhere to in the future. These actions will be consistent with Standard 2 of NMBA (2016) which states that a nurse should actively engage in therapeutic and professional relationships.

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