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A Case Report on Sepsis and Multiple Organ Dysfunction Syndrome with Acute Kidney Injury

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Abstract:

Background: Sepsis with Multiple Organ Dysfunction Syndrome (MODS) is a cause of significant morbidity and mortality in humans. It's described as the existence of impaired organ function in a critically ill patient to the point where homeostasis can't be maintained without help. S-AKI (sepsis-associated acute kidney damage) is a common complication of critically ill patients that is linked to unacceptable morbidity and mortality. S-AKI is difficult to prevent because most patients have already acquired acute kidney injury by the time they seek medical help. **Patient specific information :** The patient is a 32-year-old men he was admitted in AVBR hospital on date 14-7-2021 With chief complaint of abdominal pain ,breathing difficulty, fever, lower urine output, swelling in the lower extremities, confusion, nausea, loss of consciousness. **Main symptoms & important clinical findings :-** My patient chief complaint of abdominal pain ,breathing difficulty, fever, lower urine output, swelling in the lower extremities, confusion, nausea, loss of consciousness. After careful history , physical examination, CBC the patient diagnose as Sepsis with Multiple organ dysfunction syndrome (MODS). **Medical Management** :- A patient was provide Inj. Meropenem , Inj. Clindamycin , Inj. Pantoprazole, Inj. Emset , Inj. Lasix . **Nursing Perspectives** :- Monitoring vital signs per hourly. Prescribe medicine as per doctors order. maintain IV fluid 4 hourly & record intake output chart. **Conclusion:** Early Diagnosis & Timely Treatment patient condition was improved.

Keywords: Multiple organ dysfunction syndrome, acute kidney injury, renal failure ,chronic kidney disease.

Introduction:

Sepsis is a dangerous medical illness marked by a systemic inflammatory response syndrome (SIRS) and the presence of a known or suspected infection with devastating implications, including multiple organ failure.[1]

MODS is a complication of severe sepsis and septic shock that is a primary cause of death in surgical critical care units (ICU). The development of MODS increases ICU patient mortality by a factor of 20. The number of damaged organs and the duration of organ failure are both related to mortality. The prognosis in MODS is harmed by old age and pre-existing conditions.[2]

MODS is most typically seen in patients suffering from assault trauma, sepsis & shock but it has also been seen in situations of drunkenness. We describe a rare instance of MODS involving six organs as a result of intoxication, as well as the pathophysiology and treatment options. We present a case of Sepsis with MODS and AKI in a patient with CKD.[3]

Infection usually starts the clinical phase, which can escalate to sepsis and organ dysfunction. Recently, there have been some significant advances in the literature discussing the relationship between acute kidney injury (AKI) and chronic kidney disease (CKD).[4]

Severe sepsis and septic shock are the leading causes of death in non-coronary intensive care units in Germany, with an estimated 60 000 deaths each year (ICUs). The fatality rate for severe sepsis and septic shock was as high as 54 percent after 90 days. The combination of ARF with severe sepsis has been reported to have a fatality rate of up to 70%, compared to 40–45% for ARF alone.[5]

To reduce the chance of developing septic shock or MODS, prompt treatment is necessary. The emergency intravenous infusion of fluids and antibiotics is the first line of treatment. To elevate blood pressure, patients may be given vasoconstrictor medications intravenously, and those with breathing problems may require mechanical ventilation. When renal failure is detected, dialysis is started to help clear the blood of infectious organisms, and surgery may be utilized to drain an infection.[6]

Patient information :

This patient was a 32-year-old male admitted in AVBR hospital on date 14-7-2021 with chief complaint of abdominal pain, breathing difficulty, fever, lower urine output, swelling in the lower extremities, confusion, unexplained nausea, loss of consciousness. he was diagnosed as multiple organ dysfunction syndrome with sepsis after undergoing all investigations such as complete blood count , ultrasonography, CT Scan , MRI etc .

Primary concern and symptoms of Patient : present case visited AVBR hospital in OPD base on date with chief complaints abdominal pain ,breathing difficulty, fever, lower urine output, swelling in the lower extremities, loss of consciousness.

Medical family and psycho-social history: patient suffering from sepsis with MODS with AKI & CKD last 6 months. In family history he is belong to nuclear family. his monthly family income is 30,000. in this

family there is no any medical problems like Hypertension, Diabetes mellitus, asthma etc. There is no hereditary or genetic disorders in family.
He was mentally stable. He is oriented to date time and place and he is maintain good relationship with family member.

Relevant past investigation with outcome: History of sepsis with MODS with AKI on CKD since 6 months back for he was hospitalized for 10 days after investigation was observe he took treatment for that and he is outcome was good.

Clinical Finding :-

PHYSICAL EXAMINATION :-

state of health – unhealthy

body build - thin

Height -167cm

weight - 58kg

Vital signs :-

Temperature is 98 °C

Pulse rate of 86 per minute

Respiration :- 18 breath per minute

Blood pressure of 130/90 mmHg

During the examination of his chest, we saw bubbling rales in both lungs fields. During toxicological testi ng, monoacetylmorphine and morphine were also discovered in the urine. He had bilateral fluffy infiltrat es and exudates, pulmonary interstitial congestion and edoema, and bilateral minor pleural effusion, acc ording to a computed tomography (CT) scan of his chest. Except for a high white blood cell count of 24.5 x 109/L (normal: 411x109/L), a total blood count was unremarkable. At the time of presentation, no growth was detected from blood cultures.

Timeline: patient was visit in AVBR Hospital on OPD base with chief complaint abdominal pain , breathing difficulty, fever, lower urine output, swelling in the lower extremities, confusion, unexplained nausea, loss of consciousness.

Diagnosis Assessment : On the basis of patient history ,physical examination and investigation heart sound is murmur and shortness of breath. patient had a past history of chronic kidney disease on the basis of hypertension. My patient all investigation done like complete blood count, Routine test , random blood sugar , renal function test , hemogram , urine routine , ultrasound , CT scan , MRI (if needed) were all performed .

Diagnosis evaluation: - Diagnostic challenging :- No any challenging during diagnosis evaluation. After physical examination and investigation doctor diagnosis a case Sepsis with multiple organ dysfunction syndrome with acute kidney injury on chronic kidney disease.

Therapeutic investigation:- Medical management was provide to the patient Inj. Meropenome , Inj. Clindamycin , Inj. Pantoprazole, Inj. Emset , Inj. Lasix, Inj. Meropenem, Inj. Ticoplanin .Inj. Optineuron , Inj Paracetamol , Inj. Avil.

He was look all treatment and outcome was good. he is sign and symptoms was reduce. No any change in therapeutic interventions.

Nursing Perspectives:- Monitoring vital signs per hourly. Prescribe medicine as per doctors' order. maintain IV fluid 4 hourly & record intake output chart, Monitor vital signs ,Providing patient and relatives with psychological support,Establishing good interpersonal relationship. Maintaining confidentiality as it will relive the anxiety of the patient and relatives. It will help in avoiding the conflict with physicians, nurse and other health care providers.

Follow up and outcomes: Patient was planned for follow up regularly on basis of advice given by physician.

PROGNOSIS

1. Mortality 60-98 percent if 3 or more organ failures for >1 week (varies with age)
2. The most prominent indicator of a poor outcome is circulatory failure .
3. SOFA score at day 6 is more predictive of Day 7 mortality than SOFA score on admission
4. At one year , about half of people with MODS will not be able to return to work or normal function .

Discussion:

The Multiple organ dysfunction syndrome can represent the ultimate common pathway of various illnesses, including the underlying disease, in these people, and it is a benign virus that only causes severe infection in a small percentage of cases. Our instance, on the other hand, demonstrated MODS as a result of HHV 6 viral infection. The most common causes of AKI in the tropics include sepsis owing to bacterial invasion, parasite and viral infection, toxins, and acute diarrheal disorders.[6]

The disease's pathophysiology began with the involvement of several minor joints. Uric acid levels were found to be elevated in lab tests, which later deposited in many tiny joints, causing them to become inflamed and sensitive.

A rare case of renal tuberculosis that resulted in the loss of all right kidney function. There were no other risk factors for chronic kidney disease (CKD) in this patient, indicating that tuberculosis was the major cause of CKD.

In a study of 25 patients with renal tuberculosis, nine developed CKD and required renal replacement therapy within six months after the onset of symptoms. In the ensuing 36 months, the remaining 16 individuals experienced varying degrees of kidney function loss.[7]

The damaged organs may lose function completely in the latter stages of MODS (multiple organ failure). This can result in a death rate of up to 96 percent and is not always reversible. The damaged organs may lose function completely in the latter stages of MODS (multiple organ failure). This can result in a death rate of up to 96 percent and is not always reversible.

Since at the time of the Ancient Greeks, the process of sepsis has been recognised. The term has recently come to represent a disease.It is characterised by a severe and systemic reaction to infection. It is an acute, potentially life-threatening but reversible organ malfunction, and unresolved organ dysfunction is the more leading cause of death in critical illness. Its emergence, duration, and resolution are the result of a complex interaction of elements originating in the initial provoking insult, the host's innate immunological and metabolic response, and the helpful and deleterious effects of supportive care in the intensive care unit (ICU).[8]

The multiple organ dysfunction syndrome is a syndrome as well as a clinical abbreviation for the patient-centered approach to care that is illustrated by modern ICU management. It is believed that therapies that can control the expression of this response would eventually prove useful in improving clinical outcome because it is intricately tied to the adaptive host response to damage or infection as a syndrome.[9,10] Different studies on sepsis [11-13], Kidney injury and organ failure [14-18] were reviewed.

Conclusion:

This patient was a 32-year-old men he was admitted in AVBR hospital on date 14-7-2021 With chief complaint of abdominal pain ,breathing difficulty, fever, lower urine output, swelling in the lower extremities, confusion, nausea, loss of consciousness etc. Patient had undergone all investigations and after that she was diagnosed as a case of Sepsis and multiple organ dysfunction syndrome with acute kidney injury.

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