

Acute renal failure

Sudden and almost complete loss of kidney functions.

Causes

1. Pre-renal causes

- Hypovolemia (hemorrhage, dehydration) .
- Ischemia
 - a. Cross- clamping of the aorta.
 - b. Surgery of the aorta or renal vessels.
 - c. Extensive surgery in the elderly.
- Septicemia (septic shock)

2. Intra -renal causes

- Prolonged renal ischemia.
- Hemoglobinuria (transfusion reaction, hemolytic anemia, crush injury, burns, massive tissue injury).
- Exposure to nephrotoxic agents (Aminoglycoside antibiotics, heavy metals)
- Acute glomerulonephritis.
- Acute pyelonephritis.

3. Post- renal causes

- Urinary tract obstruction, calculi, tumors, BPH and strictures.

Signs and Symptoms

1. Lethargy
2. Persistent nausea, vomiting , and diarrhea.
3. Dry skin and mucus membranes.
4. The breath may have the odor of urine.
5. Drowsiness, headache , muscle twitching and convulsion.
6. Scanty urinary output, with low specific gravity.
7. Daily rise in the serum creatinine value.
8. Severe hyperkalemia which may lead to dysrhythmias and cardiac arrest.
9. Progressive acidosis.
10. Decrease in serum calcium level.
11. Anemia due to uremic ,gastrointestinal lesions, reduced red cells life span and reduced erythropoietin production.

Management

The goals of management are;

- To restore normal chemical balance.
- To prevent complications.

The treatment modalities include the followings

1. Dialysis , hemodialysis, peritoneal dialysis.
2. Reduce potassium level by:
 - a. Monitoring serum electrolytes level.
 - b. ECG.

- c. Administering ion exchange resins (**kayexalate**) orals, or by retention enema and eliminate external sources of potassium.

3. Management of fluid balance by:

1. Daily body weight.
2. Measurement of serum and urine concentrations.
3. Intake and output recording.
4. Check blood pressure.
5. Check for any edema, or distension of jugular veins.
2. Dietary protein are limited to approximately 1 g/1 kgBW during oliguric phase and the high protein diet after the diuretic phase.
3. High carbohydrates, restricts foods and fluids containing potassium and phosphorus such as banana, juice, and coffee.
4. Bed rest to reduce patient's metabolic rate.
5. Skin care to avoid dryness, breakdown, and itching