STANDARD TREATMENT WORKFLOW (STW)

Acute Kidney Injury

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Standard Treatment Workflow (STW) for the Management of Acute Kidney Injury (AKI)

**ICD-10-N7.9**

**SYMPTOMS**
- Reduced urine output
- Dark, concentrated urine
- Swelling over face/legs
- Breathing difficulties

**PRELIMINARY ACTIONS**
- Monitor urine volume & body weight
- Identify and treat life-threatening complications
- Correct hydration status
- Stop nephrotoxic drugs
- Exclude urinary outlet obstruction
- Stabilize blood pressure
- Treat infection
- Assess for dialysis need

**LOOK OUT FOR AKI IN THE PRESENCE OF**
- Hypertension
- Volume loss (e.g., vomiting, diarrhea, bleeding), head exposure or heat stroke
- Pregnancy-related complications
- Multiple organ failure
- Nephrotoxic medication use
- In neonates - oliguria/hematuria/birth asphyxia, respiratory distress

**INDICATIONS FOR DIALYSIS**
- Fluid overload
- Pericarditis
- Hyperkalemia
- Severe metabolic acidosis
- Hypocalcemia
- Severe anemia
- To create access fluids or blood products

**PRINCIPLES OF ASSESSMENT**
- Determine whether pre-renal, renal or post-renal
- Identify and correct reversible factors
- Look out for occult causes (e.g., infections, poisoning)
- Determine severity of AKI:
  - Identification
  - Complications
  - Decide need for dialysis

**MANAGEMENT**

**PRIMARY CARE**
- Detailed history and physical examination
- Identify and correct volume deficit
- Stop nephrotoxic agents
- Identify and correct bladder outlet obstruction
- Glue and snake venom if indicated
- Identify hyperkalemia and start treatment
- Identify pulmonary edema
- Inotropes and oxygen
- IV fluids if indicated
- Tightly referral after stabilization

**SECONDARY CARE**
- Detailed history and physical examination
- Identify and correct volume deficit
- Stop nephrotoxic agents
- Identify and treat hyperkalemia, metabolic acidosis and pulmonary edema
- Identify and correct urinary tract obstruction (UMO, CT)
- Detailed investigation for infections
- Manage pregnancy complications - deliver if indicated
- Look for underlying CKD
- Dialysis (PD or HD)

**TERTIARY CARE**
- Detailed history and physical examination
- Identify and correct volume deficit
- Stop nephrotoxic agents
- Identify and correct urinary tract obstruction (UMO, CT)
- Identify and treat hyperkalemia, metabolic acidosis and pulmonary edema
- Detailed investigation for infections
- Manage pregnancy complications - deliver if indicated
- Look for underlying CKD
- Investigations for specific cause (including imaging, genetic tests)
- Kidney biopsy
- Dialysis (PD or HD)

**RED FLAGS FOR URGENT REFERRAL**
- Indications for dialysis
- Uncontrolled AKI
- Involvement of other organs
- Severe
- Systemic disease
- Complicated pregnancy

**POD**
- Peritonioplasty
- MAI: Thrombotic microangiopathy

**CKD**
- Chronic kidney disease
- Hemodialysis

**UOR**
- Urine output

**USG**
- Ultrasoundography

**ABBREVIATIONS**
- AKI: Acute Kidney Injury
- CECT: Contrast-enhanced CT scan
- PD: Peritoneal dialysis
- MAI: Thrombotic microangiopathy
- CKD: Chronic Kidney Disease
- HD: Hemodialysis
- UOR: Urine output
- USG: Ultrasoundography

**REFERENCE**


**KEEP A HIGH THRESHOLD FOR INVASIVE PROCEDURES**

This STW has been prepared by national experts of India with necessary endorsement for various levels of health systems in the country. These broad guidelines are advisory and are based on expert opinion and available scientific evidence. There may be variations in the management of an individual patient based on his/her specific condition as decided by the treating physician. There will be no indemnity for doctor or patient concerned. A healthy and a well-informed patient is the key to a healthy and a happy life.

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