

**ACUTE RENAL FAILURE**

Acute renal failure (ARF) is defined as a decline in renal function over a period of hours or days, which results in an inability to maintain electrolyte homeostasis and an accumulation of nitrogenous waste products. ARF can be a presenting manifestation of a serious illness requiring hospitalization, or occur as a complication of illness or treatment in a hospitalized patient. The Healthcare Cost and Utilization Project (HCUP) estimates 141,000 discharges for ARF in 2002, with mean charges of almost \$22,000 per patient. The mean length of stay was 6.7 days for these patients, with an in-hospital mortality of 10.3%. Hospitalists can advocate and initiate prevention strategies to reduce the incidence of ARF. Hospitalists may also facilitate expeditious evaluation and management of ARF to improve patient outcomes, optimize resource utilization and reduce length of stay.

**KNOWLEDGE**

*Hospitalists should be able to:*

- Define the clinical significance of pre-renal failure, intrinsic renal disease, and post-renal failure.
- Describe the symptoms and signs of pre-renal failure, intrinsic renal failure, and post-renal failure.
- Distinguish the causes of pre-renal failure, intrinsic renal failure, and post-renal failure.
- Identify common electrolyte abnormalities that occur with acute renal failure, and institute corrective therapy.
- Describe the indicated tests required to evaluate ARF.
- Calculate estimated creatinine clearance for adjustment of medication dosage when indicated.
- Identify patients at risk for ARF and institute preventive measures, which may include intravenous fluid and acetylcysteine in patients receiving radiocontrast media.
- Identify hospitalized patients at risk for ARF and institute preventive measures.
- Explain indications, contraindications and mechanisms of action of pharmacologic agents used to treat ARF.
- Describe indications for acute hemodialysis.
- Identify clinical, laboratory and imaging studies that indicate severity of disease.
- Explain goals for hospital discharge, including specific measures of clinical stability for safe care transition.

**SKILLS**

*Hospitalists should be able to:*

- Elicit a thorough and relevant history and review the medical record for factors predisposing or contributing to the development of ARF.
- Review all drug use including prescription and over-the-counter medications, herbal remedies, nutritional supplements, and illicit drugs.
- Perform a physical examination to assess volume status and to identify underlying co-morbid states that may result in ARF.
- Order and interpret indicated diagnostic studies that may include urinalysis and microscopic sediment analysis, urinary diagnostic indices, urinary protein excretion, serologic evaluation, and renal imaging.
- Avoid use of radiographic contrast agents and order non-ionic agents when available.
- Identify patients who may benefit from early hemodialysis.
- Determine or coordinate appropriate nutritional and metabolic interventions.
- Formulate a treatment plan tailored to the individual patient, which may include fluid management, pharmacologic agents and dosing, nutritional recommendations, and patient compliance.
- Identify and treat factors that may complicate the management of ARF, including extremes of blood pressure and underlying infections.
- Adjust medications according to estimated renal function and route of excretion.
- Avoid use of nephrotoxic agents in ARF. If nephrotoxic agents are required, closely monitor drug levels and renal function.
- Assess patients with suspected ARF in a timely manner, and manage or co-manage the patient with the primary requesting service.

**ATTITUDES**

*Hospitalists should be able to:*

- Communicate with patients and families to explain the history and prognosis of ARF.
- Communicate with patients and families to explain goals of care plan, discharge instructions and management after release from hospital.
- Communicate with patients and families to explain tests and procedures, and the use and potential side effects of pharmacologic agents.
- Communicate with patients and families to explain tests and procedures and their indications, and to obtain informed consent.
- Recognize indications for specialty consultation, which may include nephrology or urology.
- Initiate prevention measures including dietary modification and renal dosing of medications.
- Employ a multidisciplinary approach, which may include nursing, nutrition and pharmacy services in the care of patients with ARF that begins at admission and continues through all care transitions.
- Document treatment plan and provide clear discharge instructions for post-discharge physicians.
- Facilitate discharge planning early during hospitalization, including providing the patient with contact information for follow-up care.
- Utilize evidence based recommendations and protocols and risk stratification tools for the treatment of ARF.

**SYSTEM ORGANIZATION AND IMPROVEMENT**

*To improve efficiency and quality within their organizations, Hospitalists should:*

- Advocate establishing and supporting initiatives that have been shown to reduce incidence of iatrogenic ARF.
- Lead, coordinate or participate in multidisciplinary teams, which may include nephrology, nursing, pharmacy and nutrition services, to improve processes that facilitate early identification of ARF, early discharge planning, and improved patient outcomes.
- Lead, coordinate or participate in multidisciplinary initiatives to promote patient safety and optimize management strategies for ARF.