

ACUTE KIDNEY INJURY PREVENTION and RECOGNITION

AKI can be preventable: early detection and treatment reduces harm

Risk assess for AKI

High Risk Groups

Underlying nephro-urological, cardiac, liver disease

Malignancy, Bone marrow transplant

Dependence on others for access to fluids

Medications e.g. ACE inhibitors, Angiotensin II Receptor Blockers, NSAIDS, diuretics, aminoglycosides, calcineurin inhibitors

High Risk Scenarios

History of reduced urine output

Sepsis

Hypoperfusion or dehydration

Nephrotoxic drug or toxin exposure

Renal disease or urinary tract obstruction

Major surgery

MONITOR

PEWS, fluid balance, daily weight, urinalysis, serum creatinine and electrolytes

MAINTAIN circulation

Treat hypoperfusion

MINIMISE kidney injury

Review and adjust medication - especially as per high risk groups (see above)

Recognition of AKI

Serum Creatinine*

>1.5 X previous baseline (if known)
>1.5 X age specific upper limit of normal (ULN)
(if creatinine between ULN and 1.5 X ULN, repeat measurement)

Urine Output

<0.5 ml/kg/hr for 8 hours



AKI algorithm alerts*

AKI 1: Serum creatinine >1.5-2x baseline

AKI 2: Serum creatinine 2-3x baseline

AKI 3: Serum creatinine >3x baseline

* Creatinine levels might not be significantly raised after AKI in children with neuro-muscular disease

ACUTE KIDNEY INJURY MANAGEMENT

Recognise and treat the underlying cause

INITIAL MANAGEMENT

Urgent consultant review

Initial investigations: FBC, creatinine, electrolytes, bone profile, bicarbonate, urine microscopy, urinary tract ultrasound scan within 24 hours (or within 6 hours if pyonephrosis suspected)

MONITOR

PEWS, fluid balance, daily weight, urinalysis, serum creatinine and electrolytes

MAINTAIN circulation

Treat hypoperfusion

MINIMISE kidney injury

Review and adjust medication - especially as per high risk groups (see page 1)



Immediate Referral to tertiary nephrology 07836 524364

- Potassium >6.5mmol/l (non-haemolysed sample)
- Oligoanuria and plasma sodium <125mmol/l
 - Pulmonary oedema or hypertension unresponsive to diuretics
- Plasma urea >40mmol/l unresponsive to fluid challenge

Further Management

AKI 1: If clinically relevant: C3/C4, ASOT, ANA, ANCA, anti-GBM antibodies, immunoglobulin's, blood film, LDH, CK. **Consider discussion** with a specialist paediatrician with an interest in nephrology (SPIN) or tertiary nephrology

AKI 2: Investigations as for AKI 1. **Discuss** with SPIN or tertiary nephrology

AKI 3: Investigations as for AKI 1. **Discuss** with tertiary nephrology

Paediatric Nephrology Referral

1. AKI in a patient with Chronic Kidney Disease stage 4 or 5 or a renal transplant
2. Early referral if AKI is associated with multisystem disease or suspected intrinsic renal disease e.g. haemolytic uraemic syndrome

Follow up

All patients who required dialysis or who have persisting proteinuria or reduced renal function at 3 months should be followed up by SPIN or tertiary nephrology