

# 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