BAPN AKI MANAGEMENT RECOMMENDATIONS

AKI can be preventable: early detection and appropriate management reduces harm

Risk assess for AKI

High risk groups
- Nephrourological, cardiac, liver disease
- Malignancy, bone marrow transplant
- Dependence on others for access to fluids
- Medication (e.g., ACEi, ARB, 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

Prevention: 3Ms

MONITOR (Early Warning Score, fluid balance, daily weight, urinalysis, serum creatinine and electrolytes)
MAINTAIN circulation (treat hypoperfusion adequately)
MINIMISE kidney insults (review, monitor and adjust medication)

Recognise AKI

Serum creatinine:
- > 1.5x reference creatinine (=previous baseline if known)
- >1.5x age specific upper limit reference interval (ULRI)
(if creatinine between ULRI and 1.5x ULRI, repeat measurement)

Urine output:
- <0.5mls/kg/hr for 8 hours

AKI stage

AKI 1: Measured creatinine >1.5-2x reference creatinine/ULRI
AKI 2: Measured creatinine >2-3x reference creatinine/ULRI
AKI 3: Measured creatinine >3x reference creatinine/ULRI
Management of confirmed AKI: 4Ms

1. Recognise and treat the underlying cause
2. Evaluate and review according to the following cycle:

Management
Urgent consultant review
Initial investigations: FBC, creatinine, electrolytes, bone profile, bicarbonate, urine microscopy, urinary tract ultrasound scan (within 24 hours)

Monitor
EWS, fluid balance, daily weight, urinalysis, serum creatinine and electrolytes

Minimise kidney injury
Review, monitor and adjust medication especially aminoglycosides, calcineurin inhibitors, ACEi, ARB, NSAIDS, diuretics

Maintain circulation
Treat hypoperfusion adequately

Further management

AKI 1: If clinically relevant: C3/C4, ASOT, ANA, ANCA, anti-GBM antibodies, immunoglobulins, 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 CKD4 or 5 or a renal transplant
2. Early referral if AKI is associated with multisystem disease or suspected intrinsic renal disease eg. haemolytic uraemic syndrome

Immediate referral in any stage of AKI with the following:
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

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

the 4Ms were adapted with kind permission of London AKI Network