key points

SELECTED BY

Dr Phillip Bland
Former GP, Dalton-in-Furness, UK

Acute kidney injury (AKI) is a common complication in hospitalised patients and is associated with an increased risk of chronic kidney disease (CKD) and higher mortality. Two thirds of AKI cases develop in the community prior to hospital admission. The relationship with CKD is bidirectional: patients with CKD are at much higher risk of AKI and AKI can contribute significantly to the progression of CKD.

AKI can result from abnormal perfusion to a structurally normal kidney (pre-renal AKI), injury to the nephrons (renal AKI) or obstruction to urinary flow (post-renal AKI). Restoring fluid volume to optimal levels may reverse pre-renal AKI. However, prolonged pre-renal AKI can lead to kidney cell damage known as acute tubular necrosis which is not fluid volume responsive. Recovery may be slow and incomplete.

AKI may be challenging to recognise because it is typically asymptomatic. It is usually detected incidentally in the setting of another illness when a rise in serum creatinine from baseline is identified. AKI may also be associated with a reduction in urine output but this is difficult to detect in community settings. Risk factors for AKI include age $\geq$ 65, diabetes, CKD, neurological or cognitive impairment, heart failure and the use of potentially nephrotoxic medications. Recognition of those at risk should prompt earlier and more frequent testing of U&E during any acute illness.

If an unexpected rise in serum creatinine is observed, a careful assessment of the patient's history, and a medication review, should be carried out to establish if any of the more common AKI risk factors are present. If the patient has a fever, rash, joint pains or pulmonary infiltrates on chest X-ray a less common aetiology for AKI should be considered. Proteinuria and/or haematuria on urine dipstick testing may indicate glomerular disease. Urological symptoms may indicate bladder outlet obstruction. Clinical examination should include an assessment of fluid volume status. Patients with heart or liver failure are at particular risk of AKI especially when decompensation occurs. Fluid overload (peripheral oedema or ascites) does not prevent AKI developing.

Direct same day contact with a nephrology team is advised for those patients who may require urgent dialysis for AKI complications such as hyperkalaemia, metabolic acidosis, and/or pulmonary oedema. NICE also recommends urgent referral for those patients suspected to have urinary tract obstruction; AKI and sepsis; hypovolaemia with the need for IV fluids and individuals with no identifiable cause for AKI. Management of AKI should be discussed with a nephrologist if the patient has one or more of the following: a renal transplant; a possible diagnosis requiring specialist investigation and treatment e.g. glomerulonephritis, vasculitis, myeloma; or AKI occurring in a patient with advanced CKD. If there is a clear cause for the AKI and it is responding to management in the community, referral is not necessary.