Introduction

Acute kidney injury (AKI) is characterised by sudden onset renal parenchymal injury which can be clinically undetectable or can result in generalised failure of renal function i.e. acute renal failure (ARF). The term AKI has now replaced ARF as it is recognised that there can be a spectrum of insult and injury to the kidneys without failure, and that injury which may not necessarily result in failure, can be of great clinical significance. There are classification schemes in human medicine to provide more uniform definitions of AKI. The most widely used are the Risk, Injury, Failure, Loss of kidney function and End-stage kidney disease (RIFLE) and Acute Kidney Injury Network (AKIN) schemes. A clear advantage of one classification scheme over the other has not been demonstrated. Studies to evaluate these schemes have been performed in veterinary patients and a grading system has been proposed by the International Renal Interest Society (IRIS) to better define criteria for AKI in cats and dogs, see later in this article.

AKI leads to accumulation of uraemic toxins, fluid and electrolyte dysregulation and acid-base imbalances. It is associated with high rates of morbidity and mortality. Four phases of AKI are currently recognised. These are initiation, progression, maintenance and recovery. Figure 1 illustrates the processes occurring at each phase.

Aetiology

Historically AKI in cats was most commonly associated with nephrotoxin exposure which was thought to account for >50% of cases (Worwag and Langston 2008). However, the study population was from a US referral hospital which may not represent the UK general population.