



Review

Animal models of acute renal failure

Amrit Pal Singh¹, Arunachalam Muthuraman¹, Amteshwar Singh Jaggi¹,
Nirmal Singh¹, Kuldeep Grover¹, Ravi Dhawan²

¹Department of Pharmaceutical Sciences & Drug Research, Punjabi University, Patiala 147002, India

²Khalsa College of Pharmacy, Amritsar (Punjab), India

Correspondence: Nirmal Singh, e-mail: nirmal_puru@rediffmail.com

Abstract:

The animal models are pivotal for understanding the characteristics of acute renal failure (ARF) and development of effective therapy for its optimal management. Since the etiology for induction of renal failure is multifold, therefore, a large number of animal models have been developed to mimic the clinical conditions of renal failure. Glycerol-induced renal failure closely mimics the rhabdomyolysis; ischemia-reperfusion-induced ARF simulate the hemodynamic changes-induced changes in renal functioning; drug-induced such as gentamicin, cisplatin, NSAID, ifosfamide-induced ARF mimics the renal failure due to clinical administration of respective drugs; uranium, potassium dichromate-induced ARF mimics the occupational hazard; S-(1,2-dichlorovinyl)-L-cysteine-induced ARF simulate contaminated water-induced renal dysfunction; sepsis-induced ARF mimics the infection-induced renal failure and radiocontrast-induced ARF mimics renal failure in patients during use of radiocontrast media at the time of cardiac catheterization. Since each animal model has been created with specific methodology, therefore, it is essential to describe the model in detail and consequently interpret the results in the context of a specific model.

Key words:

acetaminophen, acute renal failure, cisplatin, gentamicin, glycerol, ischemia-reperfusion injury
