Introduction

Despite the progress in surgical and anesthetic management, decreased renal function is still observed after any major surgery and remains an important problem in postoperative period. Although data regarding the efficacy of perioperative renal protection are conflicting, it is widely believed that renal protection before any major surgery is beneficial and therefore is commonly used.

Perioperative acute renal insufficiency is associated with increased morbidity and mortality. Pediatric patients undergo major surgery as cardiac, vascular or abdominal operation and those with preoperative renal impairment are at increased risk for developing postoperative acute renal failure.

There are many causes for development of perioperative acute renal insufficiency, however, prerenal and renal causes are most predominant.

The incidence of acute renal failure may be increasing and the mortality rate continues to be significant, so the development of sensitive predictive biomarkers of renal insufficiency may help in diagnosing the syndrome earlier and allow meaningful therapeutic intervention.

Serum creatinine is widely used as a measure of renal function in the preoperative evaluation. Unfortunately, serum creatinine level is influenced by muscle mass, hydration state and glomerular filtration rate.

Preventive strategies involve identifying patient at risk, adequate volume loading to correct hypovolemia, optimizing cardiac output and systemic blood pressure by using inotropes and vasopressors, use renal vasodilators to augment renal blood flow, use of diuretics to decrease medullary oxygen consumption and avoid nephrotoxic agents.