Evaluating Acute Kidney Injury in Children

Because the kidneys are often the “innocent bystanders” affected by other diseases or conditions, between 15 and 82% of children admitted to the intensive care unit have acute kidney injury, or AKI. Low blood pressure, severe infection, and certain medications essential to the treatment of serious diseases—but toxic to the kidneys—are common causes. Dr. Michele Zappitelli’s research aims to better understand AKI in order to detect the disease earlier, lessen the most severe short-term risks and improve patients’ long-term health.

Dr. Zappitelli’s clinical research laboratory is characterizing the disease by evaluating definitions and performing studies to assess the effect of AKI on various outcomes in several diagnostic populations. Included are patients on nephrotoxic medications, patients undergoing cardiac surgery and critically ill patients.

His latest projects examine the long-term outcomes of AKI in cardiac and non-cardiac critically ill patients, and in children treated for cancer with cisplatin. The aim is to evaluate whether AKI is a risk factor for chronic kidney disease and whether new AKI biomarkers of renal tubular damage can be used to better diagnose patients at risk of chronic kidney disease. Other projects focus on discovering and characterizing novel AKI urine protein biomarkers for AKI diagnosis.