

## **ATS publishes joint statement on renal failure in the ICU patient**

EurekaAlert

Despite the fact that recent medical advances have allowed healthcare professionals to stabilize patients who would have otherwise died, many stabilized patients later develop organ system failure. In fact, acute renal failure is one of the biggest threats to critically ill patients: forty percent of patients with this condition die. And yet, there is an acute lack of clinical information, and even consensus on the definition of renal failure in critical care settings, that experts cannot even agree upon its name.

The International Consensus Conference in Intensive Care Medicine on the "Prevention and Management of Acute Renal Failure in the ICU Patient" was convened jointly by the ATS, the European Respiratory Society, the European Society of Intensive Care Medicine, the Society of Critical Care Medicine and the Société de Réanimation de Langue Française in Montreal on May 4-7 in 2007 to address some of the most fundamental questions related to renal failure in the ICU.

The panel of experts who convened at the consensus conference issued a statement that appeared in the May 15 issue of the *American Journal of Respiratory and Critical Care Medicine*. Their article focused on the identification, prevention, treatment and effects of renal failure on mortality and recovery among critically ill patients. The panel specifically examined the prevention of acute renal failure in the context of different disease states, including liver failure, lung injury, cardiac surgery, tumor lysis syndrome, rhabdomyolysis and elevated intraabdominal pressure. They also analyzed the impact of renal replacement therapy (either intermittent hemodialysis or continuous hemofiltration) on mortality and recovery.

The statement recommended the use of newly described definitions and the term "acute kidney insufficiency" to describe these states. It also indicated that AKI significantly contributes to the morbidity and mortality of critically ill patients. Factors such as age, sepsis, cardiac surgery, infusion of radiocontrast media (for imaging techniques), diabetes and pre-existing renal disease, as well as hypovolemia and shock, can contribute to AKI risk.

The experts then highlighted the need for new biomarkers to identify incipient AKI. Serum creatinine remains the primary biomarker (in association with urine output, when available) for evaluating the clinical evolution of patients with AKI, and even small increases in creatinine have been shown to have a substantial impact on mortality.

The experts also made several recommendations based on the analysis of practices and outcomes.

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While stressing the importance of adequate volume repletion for prevention of AKI, the statement cautioned that correction of fluid deficits will not always prevent renal failure. In fact, the researchers noted that "persistent fluid challenges" should be avoided in cases where a patient's hemodynamics are satisfactory if previous fluid challenges did not lead to improved renal function or if oxygenation deteriorates. The statement also indicated that, while fluid resuscitation with crystalloids is effective and safe, hyperoncotic solutions are not recommended because of their renal risk.

In the case of kidney failure, the investigators noted that "renal replacement therapy is a life-sustaining intervention that can provide a bridge to renal recovery." That said, traditional triggers for this treatment derived from studies in chronic renal failure may not be appropriate for critically ill patients with AKI, and when renal support is indicated because of metabolic derangements, treatment should not be delayed.

The authors further noted that there is "no evidence that the use of intermittent hemodialysis or continuous hemofiltration clearly produce superior renal recovery or survival rates in general ICU patient populations," and stressed that performing intermittent hemodialysis in ICU patients requires a specific management of the dialysate, and that these modalities, including the new sustained low-efficiency dialysis, may not be completely interchangeable in individual patients across a heterogeneous ICU population. Finally, the statement recommended abandoning the practice of using low-dose dopamine to improve renal function.

All things considered, the panel concluded that its "understanding of how to optimally prevent, diagnose and manage AKI in critical illness will require a great deal of additional research." But the researchers also hope that this statement provides a point from which a revolution in research and treatment of AKI may begin.

"We anticipate that this consensus conference report will redefine the field of critical care medicine by providing a common framework that will standardize the design of clinical investigations and promote better communication among investigators and clinicians," said ATS past president John Heffner, M.D., who noted that a similar consensus conference on sepsis 20 years ago revolutionized the medical community's approach to studying and managing sepsis-related conditions. "We expect that the present conference will provide critical care physicians and investigators with similar opportunities to improve care and outcomes of patients in the ICU with acute kidney insufficiency."

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