

## Most COVID-19 Patients with AKI Regain Kidney Function

Recovery of kidney function is common for COVID-19 patients with acute kidney injury requiring kidney replacement therapy (AKI-KRT), according to a report in *Kidney International*.

Researchers at a large German tertiary care center report their experience with 74 hospitalized patients who developed AKI-KRT as a complication of COVID-19 between March and June 2020. The patients' median age was 65 years and three-fourths were men. All patients were in the ICU when AKI-KRT developed. Nearly all were on mechanical ventilation, and 39.2% were receiving extracorporeal membrane oxygenation.

Outcomes were assessed in October 2020—a median of 151 days after the start of KRT. In 37 patients who survived to discharge, median duration of KRT was 27 days. At follow-up, 62.2% of patients had complete recovery of kidney function while 91.9% had partial recovery. Just 3 patients (8.1% of survivors) were still KRT dependent.

From the start of the COVID-19 pandemic, AKI-KRT has been recognized as a common complication. This series of critically ill COVID-19 patients with AKI-KRT suggests that most survivors will have recovery of kidney function at follow-up in the months after discharge. Recovery can occur even after prolonged periods of KRT. "This information may be of value for patients with COVID-19 and their clinicians when it comes to deciding about the initiation or discontinuation of KRT," the researchers write [Stockmann H, et al. High rates of long-term renal recovery in survivors of COVID-19-associated acute kidney injury requiring kidney replacement therapy. *Kidney Int* 2021; 99:1021–1022. doi: 10.1016/j.kint.2021.01.005. ■

## Electronic Alerts for AKI Show Little Benefit, and Possible Harms



Electronic health record alerts have only a modest impact on care processes for acute kidney injury (AKI), and no impact on important disease outcomes—with a possible increase in adverse outcomes in some settings, according to conclusions from a randomized trial in the *British Medical Journal*.

The double-blind, multi-center trial was carried out at six hospitals, including four teaching hospitals, in a New England university-affiliated health system. The intervention was a "pop-up" alert in the electronic health record of patients meeting KDIGO (Kidney Disease Improving Global Outcomes) criteria for AKI.

At intervention hospitals, the alert was triggered whenever the chart was opened by a provider with authority to change or enter new orders—including physicians, trainees, nurse practitioners, and physician's assistants. The alert prompted providers to enter AKI onto a patient's problem list and included a link to a standard AKI order set. At usual-care control hospitals, the system generated "silent" alerts that were not visible to providers but were

tracked by the researchers.

A primary composite outcome of AKI progression, dialysis initiation, or death within 14 days was compared for patients at intervention and control hospitals. Secondary outcomes included the frequency of various care practices for AKI and the effects of the alerts at each study hospital.

The analysis included 6030 patients admitted over 22 months. There was no significant difference in rates of the primary outcome at intervention versus usual care hospitals: 21.3% and 20.9%, respectively.

At the two non-teaching hospitals, accounting for 13% of patients, the risk of the primary outcome was higher in the alert group: relative risk 1.49. The difference appeared to be mainly driven by deaths: 15.6% in the alert group versus 8.6% in the usual-care group.

Rates of kidney consultations were similar between the groups. Some small increases in process measures in the alert group were observed, including orders for intravenous fluids

and urinalysis.

It is often assumed that increased recognition of AKI in hospitalized patients will lead to improvements in care and thus in clinical outcomes, the authors noted. Thus, many health systems have introduced electronic alerts for AKI, despite limited evidence of their impact on patient outcomes.

The new trial shows no improvement in clinical outcomes in AKI patients at hospitals with electronic health record alerts and limited effects on care processes. The study also provides evidence of possible harms associated with AKI alerts in some settings, which remains unexplained.

"This study argues against the implementation of informational alerts for acute kidney injury and for a reconsideration of the alerts currently used," the authors state [Wilson FP, et al. Electronic health record alerts for acute kidney injury: Multicenter, randomized clinical trial. *BMJ* 2021; 372:m4786. doi: 10.1136/bmj.m4786; <https://www.bmj.com/content/372/bmj.m4786>. ■

Nova Biomedical's Educational Webinar Series Presents:

### Clinical Importance of Ionized Magnesium in Cardiovascular Disease, Diabetes Mellitus, Gastrointestinal and Renal Losses

The role of ionized magnesium is of growing interest in internal medicine, especially in cardiovascular diseases and in patients with diabetes mellitus. Since ionized magnesium (iMg) is the only physiologically active component of serum magnesium, total serum magnesium (tMg) is not always an accurate indicator of a patient's magnesium status. This presentation will describe recent studies showing statistically significant decreased iMg in patients with various diseases, e.g., heart failure, arteriosclerosis, lipid disorders, hypertension, heart rhythm disorders, and diabetes mellitus. Other situations also can cause a decrease in iMg, such as chemotherapy, emotional stress, and vigorous exercise. Lowered magnesium concentrations should be identified and corrected expeditiously to avoid vascular damage, arrhythmias, inflammation, and other sequelae of hypomagnesemia. The presentation will describe why measurement of ionized magnesium, not total, is a better tool to manage magnesium status correctly.

#### Learning Objectives:

- Role of magnesium in disease states including heart failure, heart rhythm disorders, diabetes, hypertension, gastrointestinal and renal losses
- Why ionized magnesium is a better tool to manage magnesium status



#### Presenter

Prof. Dr. Klaus Kisters, MD  
Med Clinic I, St. Anna Hospital, ESH Excellence Centre,  
Herne, Germany

### Combating COVID-19 and Building Immune Resilience: A Potential Role for Magnesium Nutrition

Several aspects of COVID-19 disease mimic metabolic events shown to occur during latent subclinical magnesium deficiency. Most notably, hypomagnesemia is a known pro-inflammatory state, and can predispose to cytokine storm, a factor in severe COVID-19 cases. A summary of experimental findings and knowledge of the biochemical role magnesium may play in the pathogenesis of COVID-19, particularly in severe cases, is presented. Frequent monitoring of ionized magnesium status with subsequent repletion, when appropriate, may be an effective strategy to influence disease contraction and progression.

#### Learning Objectives:

- Ionized magnesium in pro-inflammatory states
- Ionized magnesium management and repletion in COVID-19 severe illness



#### Presenter

Taylor Wallace, PhD  
Think Healthy Group, Washington, DC, USA; Department of Nutrition and Food Studies, George Mason University, Fairfax, Virginia, USA; Center for Magnesium Education & Research, Pahoehoe, Hawaii, USA

#### Webinar Dates:

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