

Weekend hospital admissions are higher risk for patients with acute kidney injury

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Patients with acute kidney injury (AKI) who are admitted to the hospital on a weekend are more likely to die than those admitted on a weekday, according to a study appearing in an upcoming issue of the *Journal of the American Society Nephrology* (JASN). This disparity was most evident in smaller hospitals. The findings indicate that researchers should further investigate the availability and timing of care to patients hospitalized with AKI.

Studies have shown that for a variety of acute illnesses, patients admitted to the [hospital](#) on a weekend are more likely to die than those admitted on a weekday. To investigate whether this is true for patients with AKI, Matthew James, MD (University of Calgary, in Alberta, Canada), Glenn Chertow, MD (Stanford University School of Medicine), and colleagues examined information from the Nationwide Inpatient Sample, a large database of admissions to acute care, nonfederal hospitals in the United States. They identified 963,730 admissions with a diagnosis of AKI between 2003 and 2006. Of these, 214,962 admissions (22%) designated AKI as the primary reason for admission (45,203 on a weekend and 169,759 on a weekday).

The investigators found that during hospitalization, 14,686 (6.8%) patients admitted with a primary diagnosis of AKI died. Patients admitted with a primary diagnosis of AKI on a weekend had a 22% increased risk of dying by day three of admission, and a 7% increase of dying during the duration of their hospital stay, compared with patients admitted on a weekday. In small hospitals, the risk was even greater. There, compared with patients admitted on a weekday, a patient's risk of dying after admission on a weekend for AKI was 34% higher after day three of admission and 17% higher over the duration of their hospital stay. The investigators also found an increased risk of death following a weekend admission among patients who were admitted for other conditions but later

diagnosed with AKI during their hospital stay.

"There are many reasons why this research is important," said Chertow. "Optimizing patient safety and nephrology resource utilization are among the two most relevant," he noted.

While the underlying reasons for the observed increased deaths among AKI patients admitted on a weekend are unknown and require further investigation, other studies have described delays in assessment, diagnosis, and management of other acute medical conditions on weekends.

Study co-authors include Ron Wald, MDCM, Chaim M. Bell, MD, PhD, FRCPC (University of Toronto, in Ontario, Canada); Marcello Tonelli, MD (University of Alberta, in Alberta, Canada), Brenda R. Hemmelgarn, MD, PhD, FRCPC (University of Calgary, in Alberta, Canada); and Sushrut S. Waikar, MD (Harvard Medical School).

In reviewing the results of Dr. James' and Dr. Chertow's study in an accompanying editorial, William McClellan, MD (Emory University) stated that the study was well-designed and that its results should encourage investigators to identify "potentially modifiable risk factors that contribute to mortality differences" so that efforts can be made to reduce AKI patients' risk of dying when admitted to the hospital on a weekend. He noted that current guidelines recommend that a patient who is admitted to the [hospital](#) for AKI should receive a timely consultation with a kidney specialist, a determination of the cause and severity of his or her condition, appropriate medications and nutritional support, and various other attributes of care. According to Dr. McClellan, it may be informative to determine how differences in these and other aspects of care might contribute to weekday-to-weekend and hospital-to-hospital variability in mortality of patients with AKI.

More information: The article, entitled "Weekend

Hospital Admission, Acute Kidney Injury, and Mortality," ([doi:10.1681/ASN.2009070682](https://doi.org/10.1681/ASN.2009070682)) and editorial entitled "V[doi:10.1681/ASN.2010030300](https://doi.org/10.1681/ASN.2010030300)g Hospitalizations for Acute Kidney Injury," [doi:10.1681/ASN.2010030300](https://doi.org/10.1681/ASN.2010030300)

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