

Day of the week plays no role in mortality risk for patients with acute kidney injury, study finds

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(Medical Xpress)—Disproving commonly held beliefs, a new study by researchers at the Perelman School of Medicine at the University of Pennsylvania showed that despite a lower frequency of dialysis on Sunday, patients with acute kidney injury (AKI) have mortality rates similar to that of patients who receive the therapy on any other day of the week. The study appears online in the *Clinical Journal of the American Society of Nephrology*.

AKI, previously referred to as [acute renal failure](#), is most often caused by reduced or blocked blood flow to the kidney and can be caused by conditions such as shock, trauma, sepsis, and heart attack. It can also occur during surgical procedures. Initiation of [dialysis](#) is necessary to help remove toxins and excess fluids from the body while the kidneys heal.

"Initiation of dialysis on Sunday is limited by constraints that do not exist on other days of the week, such as staffing differences, drug availability and patient load, which may lead to triaging of dialysis therapy," said F. Perry Wilson, MD, MSCE, an instructor of Medicine in the Renal, Electrolyte and Hypertension Division at Penn. "Until now, many in the [medical community](#) believed that these potential constraints may lead to negative outcomes, but our research suggests that patients with the most severe AKI are receiving the appropriate intervention regardless of day of the week. The patients in whom dialysis happens to

be deferred because the day is a Sunday appear to be able to be deferred safely."

In the study, Wilson and colleagues reviewed the data of over 4,900 patients from the University of Pennsylvania Acute Kidney Injury (UPHS-AKI) cohort between January 2004 and August 2010. The UPHS-AKI cohort is a retrospective cohort study composed of patients with severe inpatient AKI during admissions to one of the three UPHS hospitals in Philadelphia.

Despite prior research that suggested weekend admission with AKI is associated with higher [mortality rates](#), the current study found no difference in inpatient mortality among patients with severe AKI present on a Sunday (30 percent) compared with those with severe AKI for the rest of the week (31 percent).

The rate of initiation of dialysis for AKI was much lower on Sunday than other days of the week, with 2.5 initiations per 100 patient-days on Sunday versus 3.3 on Monday and 3.9 on Tuesday through Saturday. Despite these differences, the research team found inpatient mortality among those who initiated dialysis on a Sunday was the same (65 percent) as for those initiated Tuesday through Saturday. However, patients who initiated dialysis on Monday had a lower mortality than those who initiated it on another day of the week (52 percent).

"The finding of a lower mortality among patients who initiated dialysis on Monday prompted an exploration of characteristics of these patients compared with those who were initiated on other days of the week," said Wilson. "Interestingly, there were no statistically significant differences between patients initiated on Monday versus other days of the week across a range of laboratory, demographic, and clinical variables."

The authors write that given the severity of renal injury among dialyzed

patients was higher on Sunday than other days of the week, it may be that clinicians are delaying or not pursuing dialysis in a population of patients who would be expected to derive less benefit from the therapy.

"If this is the case, the "Sunday model" can be entertained as one that could be realistically transferred to other days of the week, reducing resource consumption without compromising patient care," said Wilson.

Dr. Wilson and his colleagues are actively pursuing research to characterize which patients benefit most from the initiation of dialysis, and in whom a policy of "watchful waiting" might be superior. In the future, randomized trials of dialysis initiation will help to guide clinicians and [patients](#) facing this very difficult treatment decision.

More information: [cjasn.asnjournals.org/content/ ... JN.03540413.abstract](https://cjasn.asnjournals.org/content/JN.03540413.abstract)

Provided by University of Pennsylvania School of Medicine

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