

Kidney injury risks higher for hospitalized pregnant women

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Silvi Shah, MD, assistant professor in the Division of Nephrology, Kidney Clinical Advancement, Research and Education Program at the University of Cincinnati College of Medicine Credit: Colleen Kelley, University of Cincinnati Creative Services

New research from the University of Cincinnati shows an increased rate

of sudden episodes of kidney failure or damage in women who are hospitalized during pregnancy.

The increased rates of acute [kidney](#) injury (or AKI) in hospitalized pregnant women were even more likely to occur among those with diabetes and showed a higher likelihood of maternal mortality with pregnancy-related AKI. The study, published in the *American Journal of Nephrology*, finds those higher rates could be due to increased awareness of the disease, and that awareness may produce protocols to reduce the impact of AKI on pregnant women.

Silvi Shah, assistant professor in the Division of Nephrology, Kidney Clinical Advancement, Research and Education Program at UC, says the research found an overall acute kidney injury rate of 0.08% in pregnancy-related hospitalizations. Compared to white women, [black women](#) had a 52% higher likelihood and Native American women had a 45% higher likelihood for AKI during pregnancy-related hospitalizations, according to the study.

"Kidney injury during pregnancy is associated with significant maternal and fetal morbidity and mortality," says Shah, lead author of the study. "Since data is so scarce for clinical outcomes with AKI during pregnancy, we examined the rates, [racial differences](#), mortality and health care utilization associated with pregnancy-related AKI hospitalizations."

The study examined more than 42 million pregnancy-related hospitalizations between Jan. 1, 2006, and Dec. 31, 2015, using data from the Nationwide Inpatient Sample. The rate of AKI during pregnancy-related hospitalization was 0.08% and the rate increased from 0.04% in 2006 to 0.12% in 2015. Factors associated with a higher likelihood of AKI during pregnancy included older age, black and Native American race and ethnicity and diabetes. Hospitalizations with

pregnancy-related AKI had a 14-fold higher adjusted risk of inpatient mortality and a 16-fold higher adjusted risk of cardiovascular events.

"AKI, defined as sudden deterioration in kidney function potentially leading to kidney failure, is not uncommon and strikingly increases the risk of morbidity and mortality," says Charuhas Thakar, division director of nephrology and professor of medicine at UC and senior author of the study. "AKI incidence has increased with the total number of AKI hospitalizations rising from just under one million in 2000 to nearly four million in 2014. Identifying specific clinical settings and co-morbid and other risk factors of AKI may provide opportunities to improve survival and reduce long-term consequences of this devastating condition."

Shah says this study is unique in that it addresses a comprehensive racial group of patients from 2005-16 from a national database to better understand the incidence of AKI during pregnancy and factors associated with it among women of child-bearing age. She says the study further considered patients with all pregnancy-related hospitalizations, thus avoiding the potential shortfalls of registries dependent on voluntary reporting or patient recall.

"Our findings suggest a high burden of AKI during pregnancy in [women](#) especially those with history of diabetes and of black and Native American race and ethnicity," says Shah. "We speculate that increased awareness and detection of AKI during pregnancy have contributed to the increasing rates of AKI during pregnancy-related hospitalizations in recent years in the United States, but further research is needed. I encourage clinicians to routinely check patient kidney panels during inpatient hospitalizations. This study suggests that implementation of specific interventions for the prevention, diagnosis and management of AKI in [pregnant women](#) may reduce the burden of AKI during hospitalizations in the United States."

More information: Silvi Shah et al, Pregnancy-Related Acute Kidney Injury in the United States: Clinical Outcomes and Health Care Utilization, *American Journal of Nephrology* (2020). [DOI: 10.1159/000505894](https://doi.org/10.1159/000505894)

Provided by University of Cincinnati

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