

# History of kidney injury increases risk of pregnancy complications

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A study by Massachusetts General Hospital (MGH) investigators finds, for the first time, that women with a history of acute kidney injury with complete clinical recovery have an increase of several adverse outcomes of pregnancy - including premature delivery and preeclampsia, a condition that is hazardous for both mother and baby - even though they appear to have normal kidney function prior to pregnancy. Their findings are being published online in the *Journal of the American Society of Nephrology*.

"Our findings that [women](#) with a history of [acute kidney injury](#) were at increased risk of complications including [preeclampsia](#) are important, because all of these women appeared to have recovered from their kidney injury prior to pregnancy," says Jessica Sheehan Tangren, MD, of the MGH Division of Nephrology, lead and corresponding author of the report. "They would not necessarily have been identified as at [high risk](#) for pregnancy complications."

While acute kidney injury is primarily seen in the elderly and in critically ill individuals, it can occur in children or young adults hospitalized for conditions including serious infections, major surgery, trauma or from medication side effects or interactions. Existing kidney disease is recognized to increase the risk for [pregnancy complications](#), but the possibility that a previous episode of acute kidney injury could also increase risk had not previously been investigated.

To address that question the research team analyzed medical records for all women who delivered babies at the MGH between 1998 and 2007 - 105 of whom had a history of recovering from acute kidney injury and 24,640 with no history of kidney disease. Despite having normal results on the standard test for kidney function - the [glomerular filtration rate](#) - women with a history of acute kidney injury were more likely to develop preeclampsia (23 percent versus 4 percent) and to

have cesarean deliveries (40 percent versus 27 percent). In addition to greater likelihood of being born early, their babies were more likely to be small for their gestational age and to require intensive care treatment.

After adjustment for several factors, a history of acute kidney injury was associated with a 2.4 times greater risk of any adverse fetal outcome and a 5.9 times greater risk of preeclampsia. While the reason behind this increased risk is unclear, it's possible that changes known to take place in small blood vessels within in the kidneys during recovery from acute kidney injury may compromise the organ's ability to cope with the demands of pregnancy. "We know that kidneys undergo major changes during pregnancy, and that sort of 'renal stress test' may reveal previously undetected [kidney disease](#) in women with a history of acute kidney injury," says Tangren.

Jeffrey Ecker, MD, chief of Obstetrics and Gynecology at MGH, says, "Information like this helps obstetric providers know what to be vigilant for in pregnant women with a history of acute kidney injury and indicates that asking about such history is important. Being especially watchful for signs and symptoms of preeclampsia in such patients is one immediate application of this work. In a longer view, work like this offers important hypotheses for future study. Can interventions in patients with a history of acute kidney injury prevent complications like preeclampsia? Taking a baby aspirin each day during pregnancy is recommended for some women at high risk for preeclampsia. Should such preventative treatment be used in women with a [history](#) of acute [kidney injury](#)? Questions like this deserve further thought and study."

**More information:** "Pregnancy Outcomes Following Clinical Recovery from Acute Kidney Injury," *Journal of the American Society of Nephrology*, [DOI: 10.1681/ASN.2016070806](https://doi.org/10.1681/ASN.2016070806)

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