Prior Acute Kidney Injury May Contribute to Adverse Pregnancy Outcomes

A cute kidney injury (AKI) is most often considered a concern for elderly and critically ill populations, but a new study indicates that it may also pose risks for pregnant women and their babies, even when women have recovered their kidney function before pregnancy. The findings, which are published in the Journal of the American Society of Nephrology, point to a newly defined group of high-risk women.

Previous research has shown that AKI can increase the risk of later developing chronic kidney disease (CKD) and dying prematurely, but the consequence of an episode of AKI on health outcomes relevant to young women—especially those who may become pregnant—has not been addressed fully. Several studies have reported adverse pregnancy outcomes in women with early stages of CKD, and even subclinical kidney dysfunction may jeopardize healthy pregnancies. Therefore, recovered AKI (r-AKI) may represent an under-recognized threat to women who wish to bear children.

To study whether a history of r-AKI increases a woman’s risk of later problems during pregnancy, Jessica Sheehan Tangren, MD, a Research Fellow in the Division of Nephrology at Massachusetts General Hospital, and her colleagues retrospectively studied all women who delivered infants between 1998 and 2007 at her institution: 105 women with r-AKI and 24,640 women without a history of kidney disease.

Women with r-AKI had an increased rate of preeclampsia compared with controls (23% vs. 4%). Also, infants of women with r-AKI were born earlier than infants of controls (average 37.6 vs. 39.2 weeks), with increased rates of small-for-gestational-age births (15% vs. 8%) and newborns admitted to the neonatal intensive care unit (26% vs. 8%). There were 189 perinatal deaths in the cohort, with significantly more deaths in the offspring of mothers with recovered AKI (3.0% vs. 0.8%); however, this association became non-significant in a multivariate logistic regression analysis.

Recovered AKI was linked with a 5.9-times increased risk of preeclampsia and a 2.4-times increased risk of adverse fetal outcomes, after adjustments were made for various patient factors including maternal age, body mass index, race, parity, history of diabetes, and diastolic blood pressure at first prenatal visit. When women with r-AKI and controls were matched 1:2 by age, race, body mass index, pregnancy length, and parity, the risk of adverse pregnancy outcomes among mothers with r-AKI remained significantly increased compared with controls.

Furthermore, women who delivered infants who died subsequently had significantly higher rates of r-AKI than women who delivered infants who survived. Finally, there were no differences found in maternal age, blood pressure, diabetes, or race, and in adjusted analysis, maternal age and blood pressure were not significantly different between women with r-AKI and controls.

Older Age Should Not Rule Out Organ Donation after Death, According to New Research

By Tracy Hampton

New research indicates that age cut-offs for deceased organ donors prevent quality kidneys from being available to patients in need of life-saving transplants. Even kidneys from donors ≥80 years of age functioned from donors ≥80 years of age functioned to Adverse Pregnancy Outcomes

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The donor organ shortage has led to recent efforts to find ways to expand kidney recovery criteria, however, including the consideration of older deceased donor kidneys. Strategies incorporating such kidneys include old for old protocols that aim to match the estimated graft survival to the evolving nephrology care team.
Kidney transplants from extended criteria donors, which were defined as all donors ≥60 years and those aged 50 to 59 years with ≥2 of the following characteristics: serum creatinine at procurement >1.5 mg/dL, cerebrovascular cause of death, and history of hypertension.

After a median follow-up of 4.9 years, patient and kidney survival rates were comparable among the 4 age groups considered (50–59 years, 60–69 years, 70–79 years, and ≥80 years). The 5-year patient survival rates ranged from 82.8% to 90.1% in these age groups, and the 5-year kidney survival rates ranged from 65.9% to 72.5%. Patient and graft survival rates were comparable between dual and single kidney transplants, except for the ≥80 year age group, which had better graft survival with dual kidney transplantation.

Donor age classes did not correlate with most adverse events, including vascular and urological complications, new onset diabetes, and malignancies. Acute rejection rates were also comparable in the 4 groups, whereas infection rates appeared to be lower in the ≥80 year age group, particularly for cytomegalovirus infection (11.1% vs. 26.4% of group 1, 51.8% of group 2, and 28.3% of group 3).

The results of this study support the use of extended criteria donors, even donors older than 80 years, but they have to be accurately selected and managed with dedicated protocols,” Biancone said.

Rates of kidney discard before transplantation were similar for kidneys from donors in the 3 younger age groups (15.4%, 17.7%, and 20.1%, respectively), but the discard rate was strikingly higher (48.2%) among kidneys from octogenarian donors. Most of the reasons for discard were age-related; in particular, macroscopic flaws and Karpinski score >6 were found in 20% and 11.8% of organs harvested from donors ≥80 years vs. 4.8% and 3.7% of those from the youngest extended criteria donors.

“Kidneys from octogenarian donors, which currently represent a significant proportion of the donor pool, are discarded in almost 100% of the cases by many transplant centers,” said Umberto Maggiore, MD, who was not involved in the study and is a transplant nephrologist at the University of Turin in Italy, noted that the cross-talk between the kidney and the placenta is important. “[It is] no wonder perhaps if all types of kidney damage are reflected and amplified in pregnancy, a situation in which the kidney is under functional stress,” she said. “The study’s findings are in line with previous studies of our group and others that suggest an effect of even minor renal damage in the development of adverse pregnancy-related outcomes. I’m concerned about how many patients we do not follow as high-risk pregnancies, and about how much we have to do to offer the best treatment to all of our patients.”