

## **Pregnancy Outcomes after Live Kidney Donation**

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### **ISSUE**

In the United States, 60% of the approximately 6,000 living persons who donate a kidney each year are female. Young women wishing to become kidney donors often ask if donation will affect their future pregnancies. Until recently, limited information was available to help answer this question.

### **DATA**

Three retrospective cohort studies, one from the United States, one from Norway, and one from Canada, reported an increased frequency of gestational hypertension and pre-eclampsia among women with pregnancies after donation compared with women with pregnancies before donation.

- Registry data from Norway was used to identify 326 donors (98% Caucasian) with 726 pregnancies, 106 of which were post-donation in 69 donors (1). After adjustment for maternal age, birth order, and year of birth, pre-eclampsia was more common in post-donation pregnancies than in pre-donation pregnancies (5.7% vs. 2.6%). The incidence of pre-eclampsia in donors was also higher than the incidence in the general population (random sample from the Norwegian Birth Registry; 5.7% vs. 3.1%), although, on average, maternal age was 5 years older among donors than among non-donors and the comparison did not account for between-group differences in prognostic factors.
- Another study examined 1085 (97% Caucasian) living kidney donors at one center in the U.S. with 3213 total pregnancies, 490 of which occurred post-donation among 239 donors (2). Study outcomes were ascertained by donor recall in a survey. Compared to the group of donors with pre-donation pregnancies, the group of women with post-donation pregnancies had a higher incidence of fetal loss, gestational diabetes, gestational hypertension, and

preeclampsia. Complications rates with post-donation pregnancies were similar to those reported for women in the general population.

An important caveat to interpreting these studies is that as women age, their risk of pregnancy complications increases, and some women became pregnant for the first time after donation (3). Comparing the outcomes of pre-donation to post-donation pregnancies even with statistical adjustment may not clearly define the incremental risk attributable to donation. Studies based on donors' recollections may also be affected by inaccurate recall of past events.

A third retrospective cohort study was performed comparing 85 donors (131 pregnancies) in Ontario, Canada, with 510 healthy nondonors (788 pregnancies) who were screened for baseline health conditions to simulate donor selection(4). Each donor was then matched to 6 healthy non-donors on characteristics that might be associated with the risk of gestational hypertension or preeclampsia: age, year of cohort entry, urban or rural residency, income, number of pregnancies before cohort entry, number of childbirths prior to cohort entry, and time to first pregnancy after cohort entry. The median follow-up time was 11 years (maximum 20 years). Gestational hypertension or preeclampsia was more common in donors compared with nondonors (11 versus 5 percent; odds ratio [OR] for donors 2.4, 95% CI 1.2-5.0). There were no differences between groups in rate of preterm birth, low birth weight, caesarean section, or post-partum hemorrhage. Most women had uncomplicated pregnancies after kidney donation.

There are no data that suggest that donation impacts the ability to conceive.

## **RECOMMENDATIONS**

- Obstetrical history, plans for future child-bearing, and hypertension risk factors should be reviewed in the medical evaluation of women considering donation.
- The Best Practice in Live Kidney Donation Consensus Conference of 2014 (5) advised that potential donors with reproductive potential should be counseled on possibility of a greater likelihood of gestational hypertension or pre-eclampsia if they choose to donate a kidney, but otherwise a low incidence of a stillbirth, neonatal death or maternal death in post-donation pregnancies.
- While it is ideal if women have completed planned childbearing prior to kidney donation, the generally good outcomes in post-donation pregnancies should not exclude donors who have not completed childbearing. Women may value existing risk information differently in their donation decision.

All women who go on to donate should be counseled on the importance of healthy lifestyle including maintenance of normal body weight, not smoking, and a commitment to regular medical follow-up.

- There is a need for more research on pregnancy outcomes among donors, including assessment of differential risk among donor subgroups – notably African-Americans who were underrepresented in the 3 studies

### **References:**

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Note: The recommendations in these chapters are the opinions of the Living Donor Community of Practice of AST. They are not meant to be prescriptive and opinions by other groups or institutions may be equally valid.