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From Medscape Medical News

Successful Pregnancy Is Possible After Lung Transplantation

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[Authors and Disclosures](#)

May 18, 2011 (Philadelphia, Pennsylvania) — Although pregnancy presents more risks after lung transplantation than other solid organ transplants, successful outcomes are still possible, according Julie Shaner, third-year medical student at Thomas Jefferson University, Philadelphia, Pennsylvania, who presented a poster here at the American Transplant Congress 2011.

In an analysis of data from the National Transplantation Pregnancy Registry (NTPR), she and her colleagues found that more organ rejection occurred in recipients who received lungs before 1996.

"Maternal outcomes included whether or not they had any increased risk of rejection during pregnancy, any hypertension, or increased risk of preeclampsia," she said. "In terms of fetal outcomes, we were looking at their risks of prematurity, low birth weight, and other various complications."

Lung transplant recipients tend to have shorter survival and graft survival than recipients of other solid organs, regardless of pregnancy.

The NTPR contains data collected over the past 20 years from questionnaires, interviews, and hospital records. In that time, 21 women who received lung transplants reported 30 pregnancies, producing 32 offspring (there was 1 set of triplets). There were 18 live births, 5 therapeutic abortions, and 9 spontaneous abortions.

The mean time between transplant and conception was 3.6 ± 3.3 years (range, 0.1 to 11.3 years). Women who received transplants before 1996 (10 pregnancies) received cyclosporine-based immunosuppressive therapy, whereas women who received transplants after 1996 (20 pregnancies) received tacrolimus-based therapy.

Maternal Outcomes

During pregnancy, 16 women experienced hypertension, 7 experienced infections, 7 experienced diabetes, 1 experienced preeclampsia, and 5 experienced rejection. All rejections occurred in women receiving cyclosporine-based regimens.

Ten of the women received lung transplants for cystic fibrosis; they accounted for 12 pregnancies, 7 of which produced live births. Three pregnancies ended in spontaneous abortion and 2 were terminated by therapeutic abortion. Three of the women with cystic fibrosis had rejection episodes during pregnancy, and 2 of them died.

At last follow-up of the 21 women, 13 had adequate graft function, 2 had reduced or poor function, 1 had a nonfunctioning graft, and 5 had died, including the 2 women with cystic fibrosis.

"The women who were on cyclosporine-based regimens had poorer maternal outcomes, increased risk of hypertension, increased risk of graft rejection, and 4 out of 5 of the deceased belonged to the group that was on cyclosporine," Ms. Shaner told *Medscape Medical News*. "The women who were on tacrolimus . . . fared better during their pregnancy, but their pregnancy outcomes were not as great, meaning a lot of them ended in spontaneous abortion."

Rejection did not necessarily result in graft loss, and not all of the 5 women who experienced rejection died, she said.

Newborn Outcomes

The mean gestational age of the newborns was 33.9 ± 5.2 weeks, and mean birth weight was 2206 ± 936 g. Eleven of them had been preterm (born before 37 weeks of gestation), and 11 were of low birth weight (less than 2500 g). Two of the triplets died in the neonatal period, and 2 babies born at 22 weeks of gestation died. One child, who received a cardiac pacemaker for an atrial arrhythmia, had atrial and ventricular septal defects at birth, but they were judged to be related to a familial condition. The defects resolved without further intervention.

"We were very surprised to see that over 50% of the pregnancies resulted in live and, I guess we could call them, 'healthy' births. There was a high incidence of prematurity and low birth weight, but with follow-up, we have learned that none of the children born to these women had any long-term repercussions," Ms. Shaner said.

At last follow-up, 16 children were surviving, reportedly in good health, and developing well.

Martin Zamora, MD, professor of medicine and medical director of the lung transplant program at the University of Colorado in Denver, who was not involved with the study, said: "I think the outcomes are very interesting for us because we don't really know how to counsel these patients."

He explained that lungs are "a more lymphatic organ" than other solid organs, which might be a reason for the greater number of problems with lung transplants in pregnancy. "They

tend to be more sensitive to volume shifts, so in the pregnant state, where women obviously have a lot more total body fluid on board, we're very concerned about the possibility of pulmonary edema or some cardiac dysfunction with pregnancy, leading to pulmonary edema and increased lung rejection," Dr. Zamora noted.

Even though successful pregnancy outcomes are possible, he said he counsels his lung transplant recipients against it. Although it is possible to become pregnant and "deliver a healthy child, . . . with the outcomes we have in lung transplantation, the mother may not be around to see the child grow past several years old," he said.

Ms. Shaner urges clinicians who have patients who meet the criteria of the NTPR to refer them to the registry, which is based at Thomas Jefferson University, to help accumulate more information on transplantation and pregnancy.

Ms. Shaner and Dr. Zamora have disclosed no relevant financial relationships. The National Transplantation Pregnancy Registry is supported by grants from Novartis, Astellas, Genentech, Teva, and Sandoz.

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