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Uterine Transplantation as a Clinical Application for the Treatment of Uterine Factor Infertility : 11 Years of Experimental Research

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Study Objective

The overall prevalence of uterine agenesis constitutes approximately 3-5% of the general population. Currently society has provided surrogacy and adoption as a temporary solution for absolute uterine factor infertiltiy. Unfortunately, these services may not be considered a valid option for a small group of patients due to cultural, demographic location or religious beliefs. This study is an overview of our 11 years of experience in the field of uterine transplantation.

Design

Pilot Study

Setting

University De La Salle Bogota', Colombia; University of Pittsburgh Medical Center, Pennsylvania

Patients
A total of 77 uterine allotransplants were performed in the pig, goat and sheep models. The non-human primate will serve as our primary model to confirm the feasibility of uterine allotransplantation.

Intervention
All animals underwent uterine transplantation via a minilaparotomy incision using a Mobius retractor device.

Measurements and Main Results
These animal models were preferred since their anatomical landmarks are comparable to the human female reproductive tract. In all animals, short-term effects of warm and cold ischemia were quantified and vascular patency assessed. After documenting vascular patency and uterine allograft viability, a modified uterine transplant procedure was established and pregnancy outcomes were ascertained. The ovine model was specifically evaluated for pregnancy, and embryos were transferred into each uterine allograft accordingly. Four months post-uterine allotransplantation, pregnancies were confirmed resulting in the delivery of a fully developed lamb via cesarean section. All animals were subjected to immunosuppressive therapy and discontinued after the completion of our study. The rhesus monkey is currently being evaluated as our final step in research, where we intend to demonstrate that a successful uterine transplant can be achieved in the non-human primate.

Conclusion
The present study highlights the promising application of uterine transplantation for the treatment of absolute uterine factor infertility. Our goal is to provide a safe and effective procedure that may be suitable for human uterine transplants.

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