



Editorial

Uterus Transplantation: Challenges and the Dawn of a New Organ Transplantation

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For women with absolute uterine factor infertility (AUI), uterus transplantation (UTx) is now an alternative to gestational surrogacy or adoption in order to have a child. The world's first clinical application of UTx was performed in Saudi Arabia in 2000 [1], however thrombi occurred in the uterine vessel, resulting in failure. This has led to rapid progress in basic experiments on UTx in several different animals. Many data were accumulated before clinical application [2]. The first successful human neonate delivery after UTx with a living donor was achieved by Brännström et al. in Sweden in September 2014 [3]. This excellent outcome has provided great hope to couples with no children due to AUI. Subsequently, the clinical application of UTx has spread rapidly across many countries. To date, more than 80 UTx procedures have been performed worldwide, and more than 40 infants have subsequently been born. Globally, UTx is rapidly spreading, and is starting to be recognized as a new assisted reproductive technology and transplantation technique.

The purpose of UTx is different from the transplantation of other life-sustaining organs. UTx is not only for organ engraftment and functional recovery, but also for sustaining healthy fetuses beyond this point. The clinical application of UTx presents many challenges, and medical, ethical, and social issues must be considered [4]. Conventional organ transplantation medicine primarily involves problems related to the donor and recipient, but in UTx it is necessary to consider the position of the child to be born, in addition to the donor and recipient. In reproductive medicine, the born child's welfare is respected as the most important consideration.

Although many live births after UTx have been reported, UTx is still at the experimental stage, with various challenges to be resolved. Moreover, the technology associated with UTx has not yet been standardized. Therefore, successful UTx in humans requires the careful accumulation of data in animal experiments and clinical trials, especially for the assessment of the efficacy and safety of the procedure. To ensure further development in this field, worldwide discussions on medical, ethical, and social issues are crucial.

This new technology will certainly be of great benefit to women with AUI, and it is expected that it will be clinically developed as new reproductive and organ transplantation medicine in the future. The current Special Issue entitled "State-of-the-Art of Uterus Transplantation" will be beneficial for understanding the current UTx status, contributing to discussions of the unresolved issues in UTx, and sharing progress and innovations for further development of UTx.

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