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RESEARCH ARTICLE

Uterus Transplant: Bioethical and Biolegal Issues from Mexico

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Abstract

Uterus transplants (UTx) provide women without a uterus the possibility of experiencing gestational motherhood. This paper delineates the complex bioethical landscape surrounding UTx, focusing on the critical aspects of informed consent, risk–benefit analysis, justice considerations, and the distinct challenges encountered by both donors and recipients. While not discussing UTx directly, John Harris' seminal work, The Value of Life: An Introduction to Medical Ethics (1985) in its advocacy for reproductive freedom and informed consent provides an informative starting point for the discussion.

As an example, UTx is analyzed within the socio-political context of Mexico. The impact of the Mexican healthcare and legal systems on UTx procedures is discussed and the regulatory measures necessary to ensure that UTx is conducted ethically and equitably are outlined.

Keywords: Uterus transplants (UTx); assisted reproductive technologies (ART); absolute uterine factor infertility (AUFI); John Harris; Mexico; research ethics

Introduction

As John Harris pointed out 40 years ago in a book that has marked our careers in bioethics and biolaw:

> (…) medical science has always and will continue to open up new, exciting, and daunting possibilities for us and our world. The control of these possibilities belongs to us all, and the wider the consideration and discussion of how to use them for the best, the safer we will all be.[1]

In the field of reproduction, uterus transplants (UTx) are an example of such developments and in this paper, we widen the discussion around the ethical and legal issues pertaining to the procedure.

Women with congenital uterine agenesis or those who have undergone a hysterectomy due to acquired conditions are commonly referred to as women with absolute uterine factor infertility (AUFI), the absence of a uterus. They face significant reproductive challenges since they cannot get pregnant or gestate. Uterus transplant (UTx) offers them an opportunity to experience pregnancy and gestational motherhood, thereby supporting their reproductive autonomy. Enhancing our capability to reproduce, ensuring safety, and reducing risks is not just permissible but morally commendable. Harris further argues that access to new reproductive technologies should not only be viewed as an instance of reproductive freedom but also, as a moral right.[2] More generally, according to Harris, enhancing human

abilities through biotechnological interventions reflects our moral responsibility to improve the quality of life and alleviate suffering.[3]

Until such time when artificial wombs are perfected, the female uterus remains necessary for fetal development, and today it is possible to transplant this organ. There have been successful clinical trials for instance in Spain, Germany, Sweden, and China, and it is estimated that more than 40 children have been born with the help of UTx.[4]

Reproductive medicine specialists and transplant surgeons around the world are collaborating to make this procedure a reality for women with AUFI everywhere. While UTx remains in the experimental stage, we must ensure that the relevant bioethical and biolegal issues are addressed.

UTx involves removing the uterus, cervix, surrounding ligamentous tissues, and the necessary blood vessels from a living or deceased donor and implanting them into a woman with AUFI. This procedure enables reproductive capability in the recipient's own body. It allows her to carry a pregnancy to term and to acquire genetic, gestational, and social motherhood. These are the prime objectives of UTx.[5] Are these strong enough reasons to continue with the research?

It has been suggested that relieving the suffering of many women with AUFI is a strong reason to carry on with this research.[6] John Harris has argued that even more than that, carrying out and participating in scientific research that will improve people's lives is a moral duty; since we all have benefited from past research, it is our moral duty to ensure that future generations can also benefit from enhanced technologies.[7]

In his book Clones, Genes and Immortality (1998) Harris offers an insightful analysis of various forms of exploitation[8] and the problem of exploitation is something we need to remain mindful of when discussing the prospects of UTx. Arguably, this is especially important in countries like Mexico where women remain a vulnerable population due to the different forms of violence they encounter.[9] It is important to highlight the risks of violence when balancing the benefits in terms of reproductive justice and access to healthcare.[10]

It is crucial, for instance, to reflect on who will have access to UTx and how the available uteri will be distributed before the practice is implemented. While it has been suggested that the existing distributive criteria for (other) organs could be applied, for instance, Margaret Horvat and Ana Iltis have argued that since UTx affects the reproductive rights of women with AUFI, the existing criteria are inapplicable.[11]

Uterus transplants, ethics, and justice

UTx is an assisted reproductive technology (ART) aimed at treating women with AUFI. While adoption and surrogacy are alternatives for those women to reach motherhood, legal, ethical, or religious restrictions often limit surrogacy, and adoption can be a lengthy and expensive process without genetic ties to the child. UTx offers a genetic connection and the experience of pregnancy without third-party involvement. However, it does not offer this opportunity to all women with AUFI since not all of them will have access to it on equal terms.

Before starting a uterus transplant process, it is important to ensure that there is a reasonable possibility to achieve a successful pregnancy. With UTx fertilization must be done in vitro (IVF) since the oviducts—fallopian tubes or uterine tubes—are not included in the transplant process. Therefore, it is advised to conduct the IVF process beforehand and determine the fertilization potential within the procedure and the initial development of the embryo. Additionally, performing IVF after the transplant can present more of a challenge due to the conditions and the immunosuppressant the patient must take, which can carry a higher risk of infection.[12]

Special features of uterus transplants

UTx falls into the same category as face, larynx, and hand transplants in the sense that its goal is not to save a person's life but to improve her quality of life.[13] It is not considered therapeutic in the traditional sense, but it allows a woman to become biologically, emotionally, socially, and visibly pregnant. The

health of the women with AUFI is not compromised by the lack of a functional uterus and their (other) physiological functions proceed regularly in everyday life. Nor is the absence of a uterus visible or socially inhibiting in the same way that prosthetics or facial deformities often are.[14]

UTx is considered 'ephemeral' since it is not intended for permanent use. After one or two pregnancies have been carried to term, the uterus must be removed. This is to ensure that the recipient only takes immunosuppressants temporarily and avoids the long-term side effects of their use.[15]

Research has shown that organ recipients often react with some degree of emotional detachment to their transplanted organs. With uterus transplants, this could be especially problematic because the uterus serves as a physical and emotional bridge between the pregnant woman and the fetus. Any feeling of alienation towards the uterus could compromise the woman's relationship with the developing fetus and, consequently, the future child.[16]

Uterus donors

Two individuals are intimately involved in UTx: the woman with AUFI who seeks the transplant to potentially experience pregnancy, and the donor. This section will concentrate on the latter.

The uterus for transplantation can be obtained from a deceased woman. This could be thought to make the process similar to a regular organ recovery. Kidneys, lungs, hearts, and other organs are routinely harvested from brain-dead donors. However, the fact that UTx is still in experimental stages and that most people are not even aware that uteri can be donated separates uterus donations from other, more 'routine' organ donations. Given the deeply felt psychological and emotional ties that many people have with uteri, we argue that it would be pertinent to ask the deceased's family if they agreed to the uterine donation. Similarly, documents where individuals specify their wish to donate organs upon their death should indicate whether the uterus is included.

From a medical point of view, the uterus from a deceased donor – assuming the donor is not related to the recipient, which would most often be the case – carries an increased likelihood of organ rejection. Receiving the uterus from a related (living) donor would, conversely, decrease the risk of rejection. This is why most transplants carried out thus far have been between mother and daughter or between sisters. A further advantage of using living donors is the ability to conduct thorough studies on both parties and schedule the surgeries effectively, which overall facilitates the process.

Obtaining the uterus from a living donor, however, gives rise to a new set of bioethical issues. It has been suggested, for instance, that it is essential that the donor has successful pregnancies and does not wish to have more children. This ensures that the donor's family project is not disrupted and provides evidence that the uterus to be transplanted functions adequately.[17]

Although the clinical repercussions of living without a uterus are minimal, there are emotional and practical consequences of donation, such as potential loss of gender identity and effects on sexuality.[18] And, of course, as with any major surgery, there are risks to the donor's health and life, and post-operation pains and discomforts cannot be avoided. John Harris has famously, and controversially, defended the view that autonomous persons should be able to donate even vital organs such as hearts. So, provided that the woman in question made a fully autonomous decision to donate her uterus, it would seem to follow that Harris would have no further ethical issues with the donation.[19]

Economic compensation is a contested issue when it comes to living donors in UTx. If UTx is viewed as just another type of organ transplant, it could be argued that no compensation should be paid as all living donations are expected to be based on altruism. Although not all agree. For instance, John Harris, together with Charles A. Erin, has suggested that to overcome the shortage of organs, an ethical market for organs could be the way to go.[20] Similarly, if UTx is seen primarily as a procedure of assisted reproduction, compensation could be the way to proceed. For instance, in the United States, Thailand, and India women are paid to act as surrogates. This has led some to argue that ART UTx might warrant compensation.[21] As a reproductive organ, the uterus and its products are commercialized in surrogacy, which could pave the way for uteri to be commercialized if they are viewed as part of assisted reproduction.[22]

When it comes to donations from blood-related individuals no economic compensation is typically considered. However, donations based on family relationships are not without problems. Family

relations can give rise to emotional blackmail and exploitation.[23] While this is true of all organ donations between family members, uterus donations can be seen as a special category because they involve our reproductive organs and concern only women. It has been suggested that some women might feel pressured to donate their organs because they have internalized a stereotypical assumption according to which women are expected to sacrifice their well-being for the sake of others.[24]

Uterus transplants alleviate suffering

For uterus recipients, the considerations surrounding UTx contrast with adoption and surrogacy, the only alternatives currently available for women with AUFI.

Adoption would allow these women to experience social motherhood, but it would not provide a genetic relationship with the children or the experience of pregnancy. The elements of genetic and gestational motherhood are noted as important by women seeking UTx. For many, the experience of pregnancy is central to their identity as women.

The other legal option for women with AUFI is to use a surrogate. Surrogacy would allow the woman to experience genetic and social motherhood, but she would still be deprived of experiencing pregnancy. In Mexico, as in other countries, the regulation of surrogacy varies between states which has caused reproductive tourism to prosper.[25]

Because of the various problems and shortcomings of the alternatives, women with AUFI are interested in uterus transplants. In addition, UTx would give these women greater control over the whole process including diet, lifestyle, medications, and prenatal care.[26] From a justice point of view, it is worth noting that in UTx, unlike in surrogacy and adoption arrangements, the mother herself internalizes and assumes all the risks related to pregnancy.[27]

Overall, UTx has the potential to significantly improve the quality of life and alleviate the suffering of women with AUFI.[28]

Uterus transplants in the Mexican context

Informed consent is a fundamental requirement in medical research and care. In the Mexican context, its conditions are well recognized and legally regulated both by the Mexican normative and by the rulings of the Inter-American Court of Human Rights regarding healthcare access and research on human beings.[29] However, the specific characteristics of UTx can sometimes compromise its validity. In Mexico, according to the National Guide for the Integration and Operation of Hospital Bioethics Committees by the National Bioethics Commission, informed consent is the tangible expression of respect for an individual's autonomy in the context of medical care and health research. Informed consent is not merely a document but a continuous and gradual process between the healthcare personnel and the patient, documented in a written form.[30]

Informed consent consists of two parts: first, the right to information, and second, freedom of choice. The information given must be clear, truthful, sufficient, timely, and objective concerning the procedure.[31] In the context of UTx, the information given should include the underlying diagnosis, the procedure, potential physical and emotional risks for everyone involved (donor, recipient, and resulting newborn life), expected benefits, possible complications, and any other relevant information.

Freedom of choice allows one to grant or refuse consent to a proposed diagnostic or therapeutic procedure after being adequately informed.[32] This means choosing whether to undergo UTx after receiving all relevant information and resolving any doubts or concerns. Informed consent aims to respect autonomy.

Both the donor and the recipient need to give informed consent based on their own evaluations of the risks and benefits associated with their respective procedures. The donor undergoes a hysterectomy, while the recipient faces surgery to implant the uterus, immunosuppressive therapy, pregnancy, cesarean section, and hysterectomy to remove the uterus after its function is fulfilled.

Informed consent from a donor pertains to a living donor. While deceased donors can express their wish to donate their uterus while alive, informed consent does not form part of the subsequent process.

The living donor must be capable of making decisions and willing to donate. She must be free from coercion, medically and psychologically fit, informed of the immediate and long-term risks of the radical hysterectomy, aware of the benefits and available alternatives for both her and the recipient, have access to an independent donor advocate, and understand that the procedure will result in sterilization.[33]

Ensuring all these points are addressed is crucial because the donor undergoes significant risks without clinical benefit, as the benefits are for the recipient. It is important to remember that uterine transplantation is still experimental, and objective evidence regarding risks for the donor is limited, meaning that fully informed consent cannot currently be provided.[34] As more information becomes available about the procedure, its risks, and consequences, it will be possible to meet all necessary criteria for the donor's fully informed consent.

The recipient in her turn must be informed of the multiple steps involved in uterine transplantation, including gonadotropin stimulation, egg retrieval for embryo creation, uterine transplantation, immunosuppression, embryo transfer, pregnancy, cesarean delivery, and eventual uterus removal. They must be made aware of the known risks that may arise during uterine implantation, pregnancy, cesarean delivery, or hysterectomy, and explained that, in addition, there could be multiple unknown risks due to limited long-term data and the experimental nature of the procedure.

Recipients should also be informed about the success rates of carrying a pregnancy to term because of the transplant, risks associated with temporary immunosuppression, potential effects of immunosuppressants on the fetus, and limitations of the pregnancy experience, as they will not feel fetal movement, contractions, or have a natural delivery but will undergo a cesarean section. These critical distinctions must be understood by the recipient to receive the uterus.[35]

Moreover, it is crucial that recipients have a strong support network and access to adequate psychological assistance, given the significant emotional components of the process.[36] Lastly, the informed consent process must be continually updated, integrating relevant information as it becomes available.

Women should not be misled to consent to UTx by giving them false expectations regarding this new reproductive technology. It should be offered as part of a research protocol with therapeutic expectations for the foreseen future, and maybe not for those women who are participating. It has been observed that patients seeking innovative surgical interventions tend to focus more on perceived benefits than on the possibility of complications or failure.

This tendency may be exacerbated in the case of UTx due to its emotional nature. This is evident in the highly emotional language used by women who have undergone medically necessary hysterectomies and lament their inability to have a child. In the context of UTx, ensuring truly informed and voluntary consent is difficult but essential.

It is important to determine whether a suffering person, in this case, a woman with different levels of vulnerability,[37] can accurately and realistically discern the risks of the proposed procedure. If the need to experience motherhood has become an obsession, it might lead the woman to ignore potential harm to herself or the fetus. Therefore, it is necessary to emphasize that these women are participants in a research study and not patients – similarly, for instance, to those research participants who helped the development of vaccines during the COVID-19 pandemic.[38]

On the one hand, UTx falls within the realm of organ donation, and on the other, it is part of ART. The latter still lacks comprehensive regulations and should be legislated with a gender perspective to protect the rights of gestating women. The rules of organ donation on their part are not well-suited for uterus transplants, since we cannot discuss varying degrees of urgency for a uterus transplant or degrees of infertility in women with AUFI to determine who needs a uterus more urgently for survival.[39]

The existing ethical criteria, laws, and regulations are insufficient to guide UTx as it rapidly moves into the clinical realm. The introduction of UTx as a new ART invites reflection on specific bioethical criteria for UTx, rather than adapting those from two areas that, although combined in this procedure, are insufficient to fully address the situations or problems.

From a feminist bioethics perspective, an essential starting point is considering the risks and benefits for the women involved.[40] For the donor, risks relate to performing a hysterectomy while preserving broad vascular support. This makes the surgery required longer than a regular hysterectomy.

Postmenopausal patients face the additional burden of hormonally restarting several menstrual cycles before donation surgery. This comes with an increased risk of thromboembolism. Psychological risks related to organ donation include anxiety, depression, and stress, which can be further complicated by perioperative pain. Additionally, issues related to the removal of the uterus, such as problems with gender identity, female self-image, and sexual dysfunction, may lead to depressive symptoms.

Benefits for the donor include an opportunity to alleviate the suffering of an involuntarily childless person and, in family donations, helping a loved one reproduce biologically and genetically. This perpetuates a hegemonic means of strengthening family bonds but also recognizes the human and social virtue of altruistically donating a uterus.

For the recipient, the risks include the usual complications of surgical procedures associated with transplanting the organ, the cesarean section if the pregnancies reach term, and the hysterectomy to remove the uterus after one or two pregnancies. There are risks from using immunosuppressants during the time the uterus is implanted and the possibility of high-risk pregnancies with potential complications like preeclampsia, and premature birth.

In addition to physical risks, psychological risks for the recipient include a potentially complex relationship with the donor. There could be feelings of shame, anxiety, and guilt for involving a healthy person in a surgical procedure to remove her uterus. The emotional burden of undergoing the transplant procedure and involving other people is significant. There is also the worry of not being able to become pregnant or suffering a miscarriage.[41] And in some countries, there is also the additional worry of being at risk of being criminalized for those sufferings, that is to say for having abortions and miscarriages.[42] These aspects are often under-discussed in relation to experimental UTx transplants, but from a gender and feminist bioethics viewpoint, we keep stressing the importance of acknowledging the lack of healthcare and the emotional burdens that these new procedures imply for women in the context of many layers of vulnerability.[43]

Final considerations

John Harris' advocacy of women's rights and reproductive freedom has been an inspiration to us. While we share his enthusiasm for the immense possibilities that scientific progress has to offer and welcome the new developments aimed at alleviating suffering and improving quality of life, in this paper we wish to highlight some of the concerns feminist bioethicists have regarding UTx.

The fact that UTx is still experimental and that objective evidence of risks for both donors and recipients is limited presents significant ethical challenges. It is crucial that the potential recipient is informed of all other options for her to start a family and that, on a national level, those options are actually available and accessible. It is equally important that the informed consent asked from the donors resembles those used for healthy volunteers in clinical research trials.

The considerations presented in this article do not aim to exhaust the problems that may arise in UTx from a feminist bioethics perspective, but to engage in the conversation about this procedure and its ongoing development. Conducting the discussion has allowed us to shed light on some aspects that might be missing from the mainstream ethical debates on UTx. UTx holds great promises for women with AUFI, but research must proceed in accordance with the highest ethical standards.

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