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Uterus Transplantation: Response to Open Peer Commentaries on the Ethics of Using Deceased vs. Living Donors

Bethany Bruno, BS^{1,2} and Kavita Shah Arora, MD, MBE^{2,3}

¹ Cleveland Clinic Lerner College of Medicine, Cleveland, OH 44195

² Department of Bioethics, Case Western Reserve University, Cleveland, OH 44106

³ Department of Obstetrics and Gynecology, MetroHealth Medical Center, Cleveland, OH 44109

We thank the commentators for their thoughtful responses. The breadth of thematic material in the responses is a testament to the complexity of the evolving science and bioethical conversation. Furthermore, the varying backgrounds of the commentators (gynecology, infertility, transplant surgery, law, social work, psychology, women's studies, LGBT studies, etc.) is a sign of the truly multidisciplinary nature of uterus transplant in both clinical research and academic discourse.

For this response, we defer general comments regarding whether uterus transplant is ever ethical (Shapiro and Ward 2018; Mertes and Van Asche 2018), having addressed this previously (Arora and Blake 2014; Arora and Blake 2015; Woessner et al. 2016). However, we briefly note our fundamental disagreement with the statement quoted by Shapiro and Ward from the California court that “[t]here are no maternal bonds created through gestation and birth,” though we agree with the outcome of the case (*Johnson v Calvert*). Regardless, it is not up to us as external parties to decide what part of reproduction does or does not have value for a particular woman – that right is hers, and hers alone. We also continue to believe that life-saving transplants must be prioritized over uterus transplants. We disagree with Vong (2018) that future children should be taken into the prioritization calculus, believing such an argument to be dangerous from a policy standpoint in terms of reproductive health. As examples such as criminalizing addiction in pregnancy or restrictions on termination of pregnancy demonstrate, a coherent public policy in terms of public health necessitates prioritizing the lives of individuals that are currently alive and members of the State.

General remarks aside, we will respond to three recurring themes we identified in the commentaries, which primarily deal with our allocation scheme – (1) the ability to procure an embryo, (2) the ability to rear a child, and (3) issues of sexuality and inclusivity.

First, we maintain our position that an individual must procure an embryo to be eligible for uterus transplantation. We respectfully disagree with Bayefsky and Berkman (2018) that this requirement is too restrictive. While some women may undergo IVF and be unable to receive a uterus, other options such as surrogacy do exist for these embryos. We view this

risk as preferable to that of undergoing uterus transplant and then not being able to obtain an embryo for implantation, which would effectively waste the transplanted organ. In the case of living uterus donation, such a criterion is also made out of respect for the risks incurred by the donor, which were undertaken for the express purpose of assisting with the birth of a child. Indeed, while in vitro fertilization science has evolved rapidly since Louise Brown, its utilization does not guarantee a viable embryo. Furthermore, our criterion does not necessitate that a woman undergo IVF herself as the embryo, or the oocyte used to form the embryo, may be donated. In this vein, we agree with Spillman and Sade (2018) that requiring the recipient to produce an oocyte herself seems unnecessarily restrictive. Both oocyte and embryo donation are mainstream and feasible in contemporary medical practice, and so there is no need to require that the patient share a genetic bond with the resultant child. Therefore, we contend that potential uterus transplant recipients must procure an embryo to be eligible for transplantation at this point in time. However, we agree with Bayefsky and Berkman (2018) that if in the future transplant science evolves such as the transplanted fallopian tubes are functional, this criterion may need to be revised, as is often the case for any criterion concerning a new technology.

Second, we maintain that although requiring assessment of comprehensive child-rearing capacity is difficult, such a criterion is necessary in determining eligibility for uterus transplantation. As stated in the primary manuscript, we wish to avoid projection of a solitary conception of what it means to be a “good mother” given its value-laden and potentially discriminatory nature. However, the minimum threshold proposed by Bayefsky and Berkman (2016; 2018) of passing a background check for abuse and neglect as well as having the financial means to create a safe environment is too low. As the updated American Society for Reproductive Medicine (ASRM) opinion states, “Offspring welfare is a valid consideration that fertility programs may take into account in accepting patients and providing services as long as they do not discriminate on the basis of disability or other impermissible factors” (ASRM 2017). In other words, such evaluations of child-rearing capacity are already being made by infertility physicians and are within their ethical purview, absent discrimination. In this vein, we specifically used the example of ongoing alcohol use disorder to concretely illustrate how the best interests and safety of the child must be paramount. Furthermore, though the terms “best interests” and “safety” may be vague, they underlie both the best interest standard and the harm prevention principle, which serve as the two overriding pediatric decision-making frameworks used both clinically and legally in contemporary society. Nevertheless, we agree that further conversation is necessary and that fertility clinics and uterus transplant programs will need to develop written policies to handle such situations. Wall and Testa’s contribution of separating listing and prioritization assists in this matter by allowing listing of any patient that meets this criterion, but then not including such a criterion in the prioritization process (Wall and Testa 2018). Such separation would also address Rogers’ concern regarding including parental fitness into existing UNOS regulation (Rogers 2018).

Third, we discuss issues of sexuality and inclusivity. While we broadly share Allyse's concern regarding sexism against women (Allyse 2018), we disagree that the controversy surrounding uterus versus penis transplantation is a sign of this sexism. The uterus is not the female sexual organ nor is it required for female sexuality. Unlike the penis, which serves

both urinary and sexual functions, the sole biological purpose of the uterus is reproduction. Thus, just as there is controversy surrounding posthumous sperm donation (a topic well-covered in the bioethics literature dealing with male reproduction), there is controversy surrounding uterus transplant. Uterus donation may not involve the passage of genetic material, but there is still much to learn regarding the role of the uterine microenvironment in fetal development (Ng et al. 2013; Salamonsen et al. 2009). In contrast, penis transplantation has specifically avoided the issues surrounding reproduction by not including the testes (Nitkin 2018). Furthermore, penis transplant solely utilizes deceased donors, while uterus transplant has thus far only been successful using living donors, leading to a more challenging ethical calculus. Additionally, penis transplantation is nascent compared to uterus transplant; although the first human uterus transplant occurred in 2000 in Saudi Arabia and the first human penis transplant occurred in 2006 in China, over 14 uterus transplants have now been performed in comparison to no more than 4 penis transplants, including only one total penis and scrotum transplant in 2018 (Bruno and Arora 2018) (Nitkin 2018). Therefore, we anticipate further work on the ethics of penis transplant by interested bioethicists in the future given many of the same complex issues such as selecting a donor, allocation, and ethics of transplanting a non-life-saving organ. We also disagree with the assessment by Spillman and Sade (2018) that we categorically and facetiously dismiss uterus transplant for transsexual patients. Our discussion simply identified ongoing knowledge gaps in medical and surgical practice regarding uterus transplant and the maintenance of pregnancy in the non-genetically female recipient. Given this lack of knowledge, we maintain that only genetic females should receive uterus transplants at this time due to safety concerns; however, we continue to “encourage further research into this area and thus identify it as a research gap” (Bruno and Arora 2018).

Looking ahead to the future, we wholeheartedly agree with Bartlett et al. (2018) that the narrative in uterus transplant has been missing and hope that it might come to the forefront to inform the transition of uterus transplant from research to clinical practice. Including the narrative of the various parties involved will also assist in delineating whether surrogate decision-making should be utilized for uterus transplant (Williams 2018); however, absent empirical or normative evidence toward that standard, we maintain that reproduction, including uterus transplant, should be largely outside of this realm.

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