Is allotransplantation of ovarian cortex using immunosuppressive therapy really indicated?

We read with interest the successful allotransplantation reported by Silber et al. (1). This is, of course, one of the first times that immunosuppressive therapy has been used for ovarian tissue allografting. Silber et al. (1) have pushed the boundaries of the technique of ovarian tissue transplantation with the use of immunosuppressive therapy.

The first live birth after allotransplantation between genetically nonidentical sisters was reported in 2011 by our team (2). The patient, aged 15 years, underwent chemotherapy and total body irradiation before bone marrow transplantation, the donor being her human leukocyte antigen (HLA)–compatible sister. At the age of 32 years, she wished to conceive. As HLA group analysis subsequently revealed complete chimerism, ovarian cortex allografting was performed, using ovarian tissue from the same sister who had previously donated bone marrow. Therefore, no immunosuppressive therapy was administered, and there were no signs of rejection. Nine months later, the patient became pregnant and delivered a healthy female infant.

In the case reported by Silber et al. (1), for religious reasons, a 20-year-old amenorrheic woman with nonmosaic 45-XO Turner syndrome desperately wished to conceive naturally without donor egg. She underwent ovarian tissue transplantation after oophorectomy was performed in her fertile 22-year-old 46-XX sister and had to take immunosuppressive therapy. She became spontaneously pregnant and delivered a normal female infant. No information concerning the ABO group and HLA analysis of the newborn is available in the study (1).

We have to do some comments.

First, ethical issues should be seriously considered. Indeed, the need for immunosuppressive therapy in the context of a non–life-threatening condition is totally experimental and can simply be avoided with the use of donor eggs. Moreover, side effects of long-term immunosuppressive therapy exist and should be discussed. Silber et al. (1) claim that uterine transplantation and ovarian transplantation fall in the same category. We refute this argument. Uterine transplantation is obviously performed for non–life-threatening conditions; however, it is the only possible way for women without a uterus to give birth to their own infant.

Second, Silber et al. (1) suggest that ovarian cortical tissue transplants possibly survive by diffusion alone with no need for revascularization. However, this hypothesis was not scientifically supported by their case report. It is difficult to envisage formation of follicles and corpus luteum and the secretion of antimüllerian hormone and ovarian steroids in circulating blood without revascularization.

Third, in their discussion, Silber et al. (1) report a live birth rate of 78% after ovarian tissue transplantation. We are surprised by this remarkably high percentage. Indeed, the live birth rate after transplantation of frozen-thawed ovarian tissue in the study by Shapira et al. (3), which included the series of Silber et al. (1), was 40%. In the largest series of cryopreserved ovarian tissue transplantation (4), the live birth rate was 30%.

We acknowledge the success of this case of allotransplantation using immunosuppressive therapy but this makes us question: should we accommodate every wish from patients, even when more logical, less invasive, and, above all, less dangerous alternatives exist?

CRediT Authorship Contribution Statement

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Declaration of Interests

J.D. has nothing to disclose. M.-M.D. has nothing to disclose.

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