Creating and selling embryos for "donation": ethical challenges

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Recently, a California company has begun creating and selling embryos, which poses a range of ethical questions that have received little scholarly attention. Other clinics may now consider doing the same. Strikingly, this new market has received attention in the popular media,[1] but relatively little in the academic literature. In this procedure, a clinic obtains sperm from one donor, and oocytes from another, and then combines them to create embryos that the clinic itself owns, stores, and then sells. Such cryopreserved embryos can enable would-be parents who lack both sperm and eggs to have children, but several critical ethical dilemmas emerge. For egg donation, the European Union bans compensating more than relatively small amounts (ie, for time and inconvenience)—generally less than approximately US $1000—while fees in the US usually range from $5,000–10,000.[2] But, should we now permit buying and selling embryos, too; if so, how? Some individuals and organizations may immediately oppose this technology for religious or moral reasons. Some feminists and others have viewed the sale of eggs, and presumably embryos, as commodification, arguing that such markets cheapen human life.[1] But can these procedures be ethically permissible, depending on how and for what indicators they are performed? As outlined in the Table, several questions and challenges arise.

Cohen and Adashi[3] recently concluded that the ethical issues involved in creating embryos for donation are essentially no different than those posed by buying and selling human sperm or eggs or donating embryos. The only clear difference, they argue, concerns legal issues of parentage.

Yet, although some of the issues are similar, others differ markedly. Neither an egg nor a sperm, by itself, can become a human being; however, an embryo certainly does, which arguably warrants special consideration. A purchased gamete contains only one-half of the future child's DNA, whereas the embryo contains the entire genome. Moreover, creating embryos raises questions that are related to quandaries of "when life begins" and "when an individual commences." Some individuals believe that embryos have greater moral standing than do gametes. In our pluralistic society, broader ethical debates continue over that issue that we cannot resolve here. But that debate does not need to be resolved to examine particular critical issues that arise regarding embryo sales. Even regarding similar aspects of purchasing a gamete vs an embryo, commercial transactions that involve embryos raise these dilemmas more acutely and forcefully, which should prompt us to revisit, rather than ignore these ongoing controversies in this new context.

In this article, we examine arguments pro and con and suggest ways of potentially proceeding. Should embryos be thought of as a commodity, a product that may be bartered or sold in the open marketplace, or as something different; if so, how? Questions arise concerning whether guidelines or parameters should be developed, and if so what should they be (eg, whether they should regard anonymity or potential future contact or mandated or permitted exchange of information between offspring and gamete donors; limits in the number of offspring created from each batch of procured gametes; and the final dispositions of any embryos above this arbitrary number). The World Health Organization states that cells and tissues should be donated only without payment, except for reimbursement of reasonable expenses (eg, loss of income), and without any "advertising the need for or availability of cells…with a view to offering or seeking payment…"[4] Yet, international consensus documents are not always followed and do not constitute law; in the United States and several other countries, the advertising and purchase of gametes regularly occurs.

Physicians from a wide variety of specialties should be aware of issues related to embryo and gamete donation, because they may well be asked questions regarding these techniques and practices. In the future, patients with diseases that are associated with genetic tests may wonder whether to screen embryos or to purchase others' gametes or embryos from nonaffected donors, instead of using their own, and may ask internists, obstetricians, pediatricians, psychiatrists, and others. Clinicians can refer such patients to assisted reproductive technology specialists; however, familiarity with the basic aspects of these issues and the complexities that are involved could aid them and their patients.

Currently, the practice of selling embryos may be relatively limited in scope, but the number of providers doing it remains wholly unknown. Even if it may not be widespread presently, it will undoubtedly become far more prevalent, as have other new assisted reproductive technologies. The unique nature of the embryo as an object for sale makes the ethical questions raised critical.

Arguably, the different possible indications for embryo donation affect the ethical considerations in each case. For couples in which both members lack gametes, the procedure

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may be justifiable ethically, depending on how it is performed. Yet, couples who purchase embryos to achieve offspring with particular desired nonmedical characteristics (eg, blond hair and blue eyes) pose several concerns.

Questions arise, too, concerning the rights of the unborn children about their ability to know their biologic parents. Presumably, many of these offspring will never learn that their biologic parents are not their parents. Companies that create human embryos de novo and gamete donors themselves may wish to keep donations anonymous. Currently, many sperm or egg recipients do not tell their child that he/she was conceived with the use of someone else's egg or sperm, fearing that the child will love them less. However, research has suggested that most adults who were conceived using donor sperm want information about their donors and think it should be provided.[5] Some offspring inadvertently find out later (eg, if a relative discloses the information or if the offspring discovers medical or legal documents) and may as a result feel disturbed, confused, mistrustful, and alienated. With a donated embryo, parents may be even more reluctant to disclose that donation occurred, because neither of them is biologically related to their offspring. Hence, with many cases of embryo donation, no contact will probably ever occur between both—not only 1—of these biologic parents and their offspring. Yet, such disclosures may be important for these individuals, who may gain knowledge that can aid their physical and psychologic health.[6,7] Gamete donors may, for instance, later discover genetic cancers or other serious familial diseases that would be important and useful information to these offspring. Many predictive genetic markers are best interpreted in the context of the patient's family medical history.

Offspring may also want to the patient's from whom they are descended for the knowledge in and of itself — to know their "roots." They may also reflect differently on their own identity if they know that they were created from embryos that were produced by individuals who never met and had nothing, knowingly, in common. Moreover, their biologic parents each in fact provided these gametes for money and thereby created the offspring partly for monetary self-gain, rather than love or altruism alone. Arguably, offspring have a right to know this information. One might argue that such disclosures may cause harm. But data from sperm donation suggest that the benefits of disclosures outweigh the possible risks.[3]

Questions arise, too, concerning how much providers or agencies should charge for embryos. The American Society of Reproductive Medicine (ASRM) has stated that women who

TABLE
Ethical challenges and questions posed by companies that make and sell embryos

Questions about the moral status of the embryo
Ethical justification may vary with indications for embryo donation (ie, medical vs nonmedical research).
What are the rights of unborn child?
Arguably, offspring have a right to know that their parents are not their biologic parents, and such disclosure would be beneficial.
Currently, gamete donors are anonymous, but problems could ensue because offspring will not be able to know either biologic parent's relevant medical or genetic history,
Will the child eventually be told that he/she was created from a purchased embryo?
Will the child be able to contact his or her biologic parents?
Do the rights of offspring to know their biologic parents outweigh the rights of donors to remain anonymous?
How much will embryos cost?
Will embryos be made-to-order based on traits?
Will companies seek to make embryos with desired traits?
Will certain traits be selected for or against, which might promote eugenics?
Would this not foster inequity and injustice?
How much to charge? Concerns about commodification: should the price of embryos vary with an embryo's traits?
Questions of ownership (eg, if a company goes bankrupt)
What are the risks of intermarriage?
Should the number of purchasers of embryos that are created from a given sperm and egg donor be limited?
If so, what should the maximum be?
If not, could this pose harm to the subsequent generation?

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