Article

Debate in embryo donation: embryo donation or both-gamete donation?

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Abstract

So far, more than 2 million babies have been born worldwide through assisted reproduction technologies. For many couples, there is no treatment except by involving a third party. Recently, embryo donation law has been approved by Iran’s parliament and now it is legal in Iran. But there is a misunderstanding regarding the source of embryos: they can be obtained from surplus frozen embryos of infertile couples or embryos can be made from donated spermatozoa and eggs from fertile married couples. Here in this paper we discuss ethical, religious and legal aspects of these two procedures and present the advantages and disadvantages of them. Meanwhile, the new term ‘both-gamete donation’ was defined for the procedure that is practised here instead of ‘embryo donation’. In conclusion we can say: (i) Iranian law means only embryo donation and covers only surplus embryos from other infertile couples and not both-gamete donation; (ii) as gamete donation is practised in Iran upon decrees of clergy leaders, we have no law or legislation against both-gamete donation; (iii) there are many ethical, legal and religious questions about both-gamete donation to be answered; (iv) ethical and religious questions are fewer concerning embryo donation compared with both-gamete donation; and (v) embryo sharing is a good way for donation of fresh embryos.

Keywords: embryo donation, ethics, gamete donation, Islam

Introduction

The birth of Louise Brown in 1978 was the culmination of decades of scientific research in reproduction medicine (Wang and Sauer, 2006). Since then, an abundance of breakthroughs in both clinical medicine and basic science have given increasing numbers of infertile couples the chance to have a baby. So far, more than 2 million babies have been born worldwide through assisted reproduction technologies (Wang and Sauer, 2006) and assisted conception births now account for 1–3% of all births in developed countries (Maher, 2005). For many couples there is no treatment except by involving a third party. Sperm donation is one of the world’s oldest and most common procedures, but oocyte donation is relatively new. The first successful oocyte donation was reported in 1984 (Lutjen et al., 1984) and the first embryo donation was reported almost at the same time (Trounson et al., 1983). Recently, embryo donation law has been approved by Iran’s parliament and now it is legal in Iran. Normally, in Iran, an infertile couple that is a candidate for embryo donation can bring the donor couple or the institute finds the donor for them. Rarely, the institute uses frozen surplus embryos from other infertile couples with their permission. Along with some social, ethical and religious debates in this programme, there is another major debate: Who can be the donor? Infertile couples donating their surplus frozen embryos? Or healthy fertile couples donating egg and spermatozoa for making and transferring fresh embryos?

Definition of embryo donation

The first step is the definition of embryo donation and its difference to gamete donation. The simple definition is the donation of an embryo from a family to an infertile couple. But if we go deeper, it refers to the donation of surplus frozen embryos from an infertile couple to another one. If we use this term to refer to a healthy fertile couple who comes to the centre to donate their embryos, this is completely equal to spermatozoa and oocyte donation together. In some countries like France, spermatozoa and egg donation together is prohibited (Eydoux et al., 2004). Also, in Iran’s law, it is mentioned that the embryos must be IVF-surplus embryos, but as it is not mentioned that...
the embryos should be from infertile couples coming to the centre for treatment, some physicians were confused about this law and misunderstood embryo donation to mean sperm and oocyte donation. So, they find a donor couple, hire them, perform the ovarian stimulation, then get the eggs from the wife and inseminate them with the spermatozoa of her husband, and donate the resulting embryos to the recipient couple. In Iran, we don’t have anything against donation of egg and spermatozoa from a legally married couple, and also it is preferred by the public because they believe that the child of a legal married couple is lawful, but it shouldn’t be mixed up with embryo donation. Therefore, from now on, this paper will refer to ‘embryo donation’ as the donation of frozen surplus embryos of infertile couples and refer to ‘both-gamete donation’ as performing IVF with the gametes of a healthy fertile couple, who then donate their embryos.

Islamic survey

Assisted reproduction is well accepted, except for donation, in the Islamic world. It is mentioned in the Holy Quran: “Wealth and progeny are the allurements of this world” (Holy Quran 14:46) and in another place it says: ‘And those who pray, Our lord, grant us spouses and offspring who will be the comfort of our eyes’ (Holy Quran 25:74) indicating the importance of offspring in Islam. Also the famous stories of two prophets, Abraham and Zachary who were infertile for a long time (Holy Quran 3:38, 51:28) explains infertility as a difficult situation in the Holy Quran. The infertile couples’ treatment is the only aim considered for assisted reproduction so, techniques should be used just for treatment and not for any enhancement (e.g. taller or higher IQ in offspring). In the third conference of the Islamic Fiqh Council (held in Amman, Jordan, October 11 – 16, 1986) the Council accepted assisted reproduction techniques only between husband and wife and banned all kinds of donations. So, proper marriage is necessary for offering fertility services in the Islamic world (Samani et al., 2007).

In Islam, looking at and touching the genitalia is forbidden except for the spouse, but when there is a necessity for treatment, this is permitted for the doctor. Here, we should discuss what necessity is and which conditions can be referred to as a disease. Then, we can discuss infertility in terms of a disease or an enhancement. Clergy leaders believe that this necessity is not just a request, but a hard situation in which life is difficult for the patient. Our clergy believe that infertility is a disease and should be relieved (Rezania Moalem, 2006). In our country and most of the countries in and around the Middle East, infertility is a very hard situation leading to serious family problems or divorce. So, it is clear that infertility is a disease to be relieved and can be referred to as a necessity that permits the doctor to look at and touch the genitalia a part of infertility treatment. Donation programmes are practised in Iran and no other Islamic country allows this kind of treatment. As said before, ‘embryo donation’ is legal in Iran, but if it changes to ‘both-gamete donation’, as is practised in some centres, the necessity of looking and touching for the donor is under question! Our clergy believe that donation itself is permissible, but because there is no obvious necessity for the donor to expose her genitalia to the doctor, because she herself is not under treatment and her aim is to help another woman, the legality of this is in controversy. The main question is: can treatment of one person permit the looking at and touching the genitalia of another person, if the treatment puts an obligation to it? Without looking and touching the donor, nobody can treat the recipient. Some clergy believe that it can be regarded like blood donation in which the necessity of transfusion is for the recipient, but there must be a donor that sacrifices to help another human. If infertility is a serious disease, there should be a donor to help this family and solve the problem and thus it can be considered as a necessity for the donor to expose her genitalia to the doctor. This is the question to be answered in the future by clergy leaders, leading to a decree in this regard.

If we consider ‘embryo donation’ just for frozen surplus embryos from other infertile couples, there is nothing against looking and touching in Islam, because the necessity is true for both infertile donor and recipient. Donation itself is forbidden by Sunni clergy as they compare any gamete donation to adultery and embryo donation to adoption, and no Islamic country accepts adoption except Tunisia and Iran. Also, lineage (or filiation) is very important in Islam and cannot be handed over to other people by government or law. It means that all the parent–child rights and relations are connected to the lineage and, in donation, this lineage goes to the donor. Most Shiite clergy don’t believe that gamete donation is the same as adultery, because in Islam and also in society, adultery has a well-known definition, that there must be a woman and a man touching each other, but in gamete donation, the donor and recipient even don’t know each other and so gamete donation is accepted. Almost all of the clergy connect the lineage (filiation) of the child to the donor, so the child cannot inherit from their social father, but most of the Shiite clergy accept adoption and, thus, embryo donation.

Advantages of both-gamete donation

Within the past few years, however, several reports have suggested that there may be links between assisted reproduction and an increased risk of low birthweight, birth defects, specific imprinting disorders and, possibly, childhood cancer (Verlaenen et al., 1995; Dhont et al., 1999; Westergaard et al., 1999; Hansen et al., 2002; Schieve et al., 2002).

Although many of these children’s problems are not related to their infertile parents (unlike multiple gestation, elective Caesarean section normally before estimated day of confinement, hormonal therapy for stimulation, culture media and intracytoplasmic sperm injection), it has always been thought that infertile couples have some health problems, mostly minor genetic defects, making them infertile (Eydoux et al., 2004). Also, the mean age of infertile patients is higher than that of the population of women of reproductive age, because of the years they have spent trying to achieve a pregnancy. Women show a progressive decline in fecundity as they pass through the reproductive years which can be attributed to numerous potential causes, including changes in oocyte quality (Erdem et al., 2003; Rowe et al., 2006), that in turn can affect the IVF results (Broekmans and Klinkert, 2004; Wang et al., 2008). It is well known that the gametes coming from older women are at risk of chromosomal defects (Pellestor et al., 2003, 2005; Eydoux et al., 2004; Sherman et al., 2005; Vialard et al., 2006, 2007; Pacchierotti et al., 2007).
Recently it has been reported that the risk of gene mutations may be increased in assisted reproduction offspring, even though their fathers have normal spermatogenesis and genetic backgrounds (Feng et al., 2008). Conversely, it cannot be proved that an infertile couple is healthy. Male infertility in particular is considered a genetic disease most of the time because the aetiology of compromised spermatogenesis is often genetic (Neri et al., 2008). Also a genetic origin is considered for many other infertility causes such as polycystic ovaries (Dasgupta and Reddy, 2008) and an infertile couple may have some known and unknown genetic or chromosomal diseases (Eydoux et al., 2004; Mau-Holzmann, 2005).

It is very clear that an infertile couple requesting embryo donation would like to get the best and healthiest embryo to have a healthy child, so recipient couples prefer both-gamete donation, with good donor evaluation and particularly from young donors who have a history of a healthy child, rather than embryo donation from an old infertile couple with the possibility of genetic disorders and advanced age. Although age limitation is considered for the embryo donors like gamete donors (Eydoux et al., 2004; European Society for Human Reproduction and Embryology [ESHRE] Taskforce on Ethics and Law, 2002; Practice Committee of American Society for Reproductive Medicine [ASRM] 2006), nothing is mentioned in Iran’s law in this regard.

Another matter is fresh or frozen embryo transfer. It is well known that a number of frozen embryos die during the thawing procedure, although by using new techniques this number is decreased (Loutradi et al., 2008), but even so, there is a significant decrease in pregnancy rate using frozen embryos compared with fresh embryos (Wang et al., 2001; Gunby et al., 2007; Urman et al., 2007). So, fresh embryo transfer is preferred and fresh embryo transfer can be obtained by ‘both-gamete donation’.

There is another way to achieve fresh embryo transfer in these patients, but there are some ethical concerns. An egg-sharing programme is one in which an infertile woman undergoing assisted reproduction treatment shares her oocytes with another couple seeking oocyte donation, and in exchange gets a portion of the treatment cost (Check et al., 1994; Heng and Zhang, 2007). Here, we can define a new term, ‘embryo sharing’: it means that, after insemination and making embryos, the couple gives half of the embryos randomly to another couple requesting embryo donation in exchange for a portion of the treatment expenses. Ethical questions regarding this procedure are: Can anyone get money for their embryos? Are the parents the owner of the embryo so they can sell it? Can embryos be considered as a property? If no payment is paid, would any couples donate their embryos for free? What would be the donors’ incentive to reduce their own chance and give it to the others? If we reduce the donation number to just one embryo, would it be in anyone’s interest to donate one of the embryos to another couple for altruistic reasons?

After all, if we accept payment for embryos, embryo sharing seems to be a good way and can be considered in special circumstances. A good explanation of the payment is the compensation for possibly needing additional treatment cycles. As we know, donating some of the embryos will decrease the chance of pregnancy by lowering the number of fresh and frozen embryos and the frozen embryos are the source for next cycle if the current one is not successful. The payment is then compensation for the treatment expenses of the next cycle when there are no frozen embryos to do the treatment without stimulation and oocyte retrieval.

Choosing the fate of frozen embryos for an infertile couple is a difficult subject. Many couples do not donate their surplus frozen embryos to others because of their beliefs, culture, religion or other reasons (Bangsbøll et al., 2004; McMahon and Saunders, 2009). The number of such couples is different in every country, even reaching up to 90% in Australia (Fuscaldo and Savulescu, 2005). A shortage of embryos for donation can be a problem.

Disadvantages of both-gamete donation

It has been proven that ovarian stimulation has side effects and complications. The range of complications varies from the risk of cancer (Mosgaard et al., 1997; Potashnik et al., 1999; Venn et al., 1999; Ness et al., 2002; Burkman et al., 2003) to serious and potentially life-threatening situations like ovarian hyperstimulation syndrome (Delvigne and Rozenberg, 2002). The most important disadvantage of ‘both-gamete donation’ is putting a normal woman at risk by using ovarian stimulation drugs. In this situation it is similar to egg donation, because the egg donor is in exactly the same danger, and maybe if egg donation is permitted by law, then ‘both-gamete donation’ can be permitted too. The same danger is not considered for ‘embryo donation’, because the embryo donor takes the risk for her own treatment but not for the donation alone.

Payment for embryo donation is prohibited by law in Iran, but compensation is currently acceptable for gamete donation. So, what would be the situation if we recruited a couple to donate their gametes and used the resulting embryo? Is payment acceptable in this programme? In one way, it is gamete donation and in another way, it is embryo donation, so, compensation is under question in this programme. In the international guidelines, no payment is acceptable for embryo donation, but reimbursement of some laboratory tests that need to be performed on the donors for safety reasons is permitted (ESHRE Taskforce on Ethics and Law, 2002; Practice Committee of ASRM 2006). If our aim is just ‘embryo donation’ there seems to be no need for payment because the donor couples do not need their frozen embryos any more.

At the moment, the donor and recipient couples are known, and there is no confidentiality and anonymity between them. This would be the worst part of this programme, especially in Iran. As said before, in Islam, children’s and parents’ relationships and rights are directly dependent on the lineage, and this is considered by nature and no one can separate the rights from the biological parents of the child. In both-gamete donation and embryo donation, the biological parents are considered the true parents and all the parent–child rights and relations, like guardianship, intimacy, custody, expenditure and inheritance, are connected between the child and the donors, not between the child and the social parents. Moreover, as the child is the true child of the donors, they can request it whenever they want and no law can prevent this request. No contract can be made...
in this regard because these relations and rights are considered as natural and cannot be changed by law or government, so any contract to change these relations and rights is considered illegal by Islam. The only way we have to protect recipient families in our country is by keeping full confidentiality and anonymity. If anonymity is kept, all the rights and relations will be connected to the social parents except inheritance, because in Islamic countries inheritance from parents is not by will, and only true children of dead persons can inherit from them, and there are some suggestions to solve this problem. The lineage of the child conceived by donation goes back to the donor, therefore they are not considered to be true children of the social father. The parent–child relations and rights in donation will be the subject of a future publication.

Now the problem is how to keep anonymity between the recipient and donor couples if they know each other. It seems that the institute must find the donors and keep the anonymity during the programme, but in this manner, can it be without compensation? Is there any couple that would come to the institute to donate free of charge? The solution could be suggesting to the egg donors that their husbands also donate spermatozoa, resulting in both-gamete donation. As they are ready to donate the eggs and donation of the spermatozoa will not add harm to the couple, it would be the best way to recruit the donors. But if it is considered as embryo donation, then compensation is illegal. There seems to be no problem at all in the embryo donation programme, because the donors do not want the frozen embryos any more, and if they don’t donate, the embryos would be destroyed.

Another disadvantage is the screening of donors, which is very important in any donation programme. Normally, complete screening of the couple is not done when donation is not considered, because the child will be the couple’s own, but if the embryo is to be donated to others, the recipients need to be assured of the donors’ health. If the both-gamete donation programme is chosen, both parents are available for any test, but if we are using frozen embryos from infertile couples, it may be that there are no embryos available or the donors refuse the screening tests. In this case, international guidelines mentioned that the donation of potentially unsafe embryos should not be performed (ESHRE Taskforce on Ethics and Law, 2002; Practice Committee of ASRM 2006). For human immunodeficiency virus (HIV) testing, it would be better to freeze the embryos for at least 6 months, re-evaluate the parents and, if the HIV test is negative, then transfer the embryos to the recipients. Such a programme is only available through the ‘embryo donation’ programme, and it is too difficult to bring the donor family back after 6 months to test them. In this situation, the recipient must know that maybe the embryo is infected with HIV, so international guidelines state that the embryo must be labelled ‘not evaluated for infectious substances’ (Practice Committee of ASRM 2006).

Iran’s embryo donation law

Iran’s law does not limit embryo donation to surplus frozen embryos or embryos from infertile couples. It states just that the donors must be a ‘legal married couple’. So the law supports both-gamete donation. Advantages, disadvantages and ethical concerns of the currently used program named ‘both gamete donation’ are discussed and the Islamic concern regarding ‘both gamete donation’ is discussed.

Conclusion

A new term ‘both-gamete donation’ has been defined, which is confused and misunderstood to be ‘embryo donation’ in several IVF centres in Iran. Iranian law currently only covers embryo donation and only covers surplus embryos from other infertile couples and not both-gamete donation. There are many ethical, legal and religious questions about both-gamete donation that need to be answered. It is suggested that the law should be clarified to prevent any misunderstanding in this regard.

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Declaration: The authors report no financial or commercial conflicts of interest.

Received 23 June 2008; refereed 3 October 2008; accepted 25 February 2009.