Oocyte donor selection from 554 candidates

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Oocyte donation is a technique in full expansion in the field of human reproduction. The main problem with this technique is the shortage of oocytes. In our programme, prospective donors are selected from anonymous, well-informed university students over 18 years of age, who give their informed consent in writing. Before being accepted as donors, the candidates’ personal and family medical histories were taken and they were given a gynaecological examination, genital ultrasonography, and analysed for syphilis, acquired immune deficiency syndrome, hepatitis B and C, coagulation factor VIII, fetal haemoglobin and karyotype. The donors received economic compensation of about 750 euros. Over the last 6 years, 554 medical histories have been taken. Fifty-eight candidates (10.5%) were rejected because of previous family or personal pathologies. Only 243 out of 496 (49%) continued the study. Sixteen candidates (7%) were rejected as a result of gynaecological problems and ultrasonographic results; and 12 (4.9%) as a result of their blood test results; 215 donors were accepted (38.8% of the original population). Other options for recruiting oocyte donors are commented on and we argue that the methodology described here is the most suitable one.

Key words: gamete donors/oocyte donation/ovum donation/screening oocyte donors/student oocyte donors

Introduction

The first birth resulting from donated oocytes fertilized in vitro was achieved in 1984 (Lutjen et al., 1984). Since then, oocyte demand has increased. The following groups of women require donated oocytes to achieve pregnancy: women with premature ovary failure or gonadal dysgenesis, women who have undergone chemotherapy and/or radiotherapy, and women who have undergone an oophorectomy (Lutjen et al., 1985; Rosenwaks, 1987). Donated oocytes are also required by women with a high risk of transmitting hereditary diseases (Van Voorhis et al., 1992), after reiterative IVF failure (Lindheim, 1998), or with physiological menopause (Antinori et al., 1993). Other, less frequent indications include inaccessible ovaries and congenital thymic aplasia (Lindheim, 1998). Premature ovary failure (hypergonadotrophic hypogonadism in women under 40 years of age) affects 1% of the female population (Coullam et al., 1986), and is the most frequent single cause for requiring donated oocytes, accounting for 32% of cases. This is followed in frequency by IVF failures (29%), perimenopause (10%), gonadal dysgenesis (9%), physiological menopause (8%), surgical castration (5%), hereditary diseases (3%), and secondary ovary failure due to chemotherapy and/or radiotherapy (1%) (Lindheim, 1998).

The increased demand for donated oocytes is a reality. In the UK, IVF cycles with donated oocytes have increased fivefold in 3 years (Human Fertilisation and Embryology Authority, HFEA, 1996). Our own experience corroborates this increase in oocyte demand, which has doubled in 3 years. However, another reality is the scarcity of donated oocytes (Brown, 1998). This parallel reality may explain the long waiting lists (taking years in many cases) and the fact that, in 1994, 35% of the centres practising assisted reproduction techniques in the USA did not offer oocyte donation programmes (Society for Assisted Reproductive Technology Registry, 1996). In Spain, over 50% of assisted reproduction centres do not practice oocyte donation. The difficulty lies in obtaining donated oocytes. We present our centre’s experience with donor recruitment, donor selection, and the results obtained.

Materials and methods

In our attempt to recruit oocyte donors, we have focused on university students from Barcelona. Advertisements were placed on University bulletin boards and in free student magazines. Catholic-ideology university magazines do not accept advertisements for gamete-donor recruitment. The following three points were included in the advertisement: (i) donors should be between 18 and 25 years old (the age of consent in Spain is 18), (ii) the intended use of the oocytes, i.e. to help sterile women have children, and (iii) economic compensation. No information was provided over the telephone, but through a preliminary personal interview with a doctor from the centre. This interview was only to provide information. The selection study was not initiated in the following cases: (i) when the candidate did not wish to continue with the programme after the preliminary interview, or requested some time to think about her decision; (ii) when the candidate did not fulfil all the necessary prerequisites (being 18 years of age and not being virgin, since vaginal ultrasonography was necessary); and (iii) adopted women were not accepted as oocyte donors. Because of the retrospective nature of this study, the students who were informed but who did not begin the selection study have not been included.
Information

Briefly, the information given to suitable candidates was as follows:

(i) Oocyte use: to solve the sterility problems of women with no ovaries or with non-functional ovaries and those suffering from hereditary diseases. The oocytes would not be used for any other medical research aims.

(ii) The donation would be anonymous, i.e. the recipient couple's identity would not be known and vice versa.

(iii) Information about whether the embryos were successfully obtained or whether pregnancy was achieved from the donor's oocytes would not be reported.

(iv) The candidate would have no rights or duties towards any children born from her oocytes.

(v) She would have to sign an informed consent form.

(vi) The candidate would be subject to a preliminary selection study in order to be accepted as a donor. The preliminary study consisted of the following: a personal and family medical history, gynaecological examination, genital ultrasonography via vagina, and blood tests. The candidate would not be accepted if any anomalies were detected in the selection study, or if the information reported by the candidate did not allow or recommend that she become a donor. When there was doubt, the candidate was discouraged from becoming a donor. For accepted candidates, the donation process requested the following:

(vii) The candidate must stop taking oral contraceptives if she was taking them. However, it was not necessary to extract the intruterine device if that was the contraceptive method she used. The candidates were also informed that sexual intercourse should be avoided.

(viii) Ovary stimulation treatment would have to be initiated on day 2 of the cycle. In order to ensure that the treatment was properly applied, the donor would need to visit the centre every day, where a nurse would inject her, subcutaneously, with a gonadotrophin-releasing hormone agonist (GnRHa) (Procrin®, Abbot, Madrid, Spain) and either pure or recombinant follicle stimulating hormones (FSH) (Neo-Fertinorm® or Gonal-F®, Serono, Barcelona, Spain).

(ix) The donor was informed about the nature of the hormone injections, why such treatment was necessary, and how many days the treatment usually took.

(x) On certain days the gynaecologist would carry out transvaginal ultrasonography, and blood samples would be taken to measure 17-ß-oestradiol concentration. The donor would have to visit the centre in the afternoon for the injection of 10 000 IU of human chorionic gonadotrophin (HCG) (Profasi HP®, Serono).

(xi) Potential donors were told that they might feel swelling in the lower abdomen because of the increased volume of the ovaries caused by follicle growth.

(xii) The risk of ovarian hyperstimulation would be minimal, since a low dose of FSH would be administered, and the donor would not receive the embryos. The risk of hyperstimulation is considerably lower when pregnancy does not take place.

(xiii) The reported increased risk of ovarian cancer as a result of gonadotrophin hormone treatment has not been proven.

(xiv) Studies show that the donor's future fertility is not reduced (Söderström-Anttila, 1995).

(xv) On the day of oocyte retrieval, the donor would have to visit the centre without having eaten anything since the previous evening, accompanied by a friend, partner or family member. She would not have to check into the hospital.

(xvi) Oocyte retrieval would take place by follicular puncture guided by transvaginal ultrasound.

(xvii) A general anaesthetic would be used (Propofol; Abbott, Madrid, Spain), controlled by an anaesthetist. Endotracheal intubation would not be necessary. At our centre, the first cases were carried out using an epidural anaesthetic.

(xviii) After oocyte retrieval, the donor was told she might suffer a slight vaginal haemorrhage that could require the use of a vaginal tampon.

(xix) She would have to rest for 24 h (but not in bed) and take the prescribed analgesics and anti-inflammatory drugs if required.

(xx) A week later, the donor would have an appointment with the doctor for a gynaecological check-up and vaginal ultrasonography. The donor could contact the doctor responsible for her case at any time. On a day-to-day basis, she could communicate any questions or concerns to the nurses, who are trained to be especially sensitive to the situation of donors.

(xxi) The donor could stop the donation treatment at any time. The dangers involved in stopping the process after HCG injection would be stressed, especially the risks involved in not showing up for follicular aspiration after receiving the HCG injection.

(xxii) The donor was informed of the economic compensation upon finalizing the follicular puncture (750 euros). If the donation were cancelled for medical reasons, the donor would receive about 150 euros. If the donation process was voluntarily abandoned by the donor, no economic compensation would be paid. Donors could stop the donation process whenever they wanted, but it was necessary for the centre to avoid expenses as a result of donors changing their minds after beginning the process.

Family medical history

The family medical history was taken on the donor's closest family members: her parents, brothers and sisters and children. Information was also gathered on her aunts and uncles, cousins, nephews and nieces, etc. The medical history included asking the potential donor whether any of her family members (especially first-degree family members) had suffered or suffered from epilepsy, schizophrenia, mental disorders, or mental deficiency, and whether there had been any cases of suicide in her family; congenital blindness or deafness, congenital defects of the heart, lungs, kidneys or spinal column (spina bifida), coagulopathy, type 1 diabetes, intestinal polyps, inherited hypercholesterolaemia, death from cancer (including type), early death from heart ailments (<40 years of age), thyroid or growth pathologies, and any other illnesses in the candidate's family that she was aware of.

Personal medical history

The following aspects were considered with respect to the potential donor's personal medical history: previous allergies; eye, ear, liver, kidney, heart, lung, vertebral and neurological pathologies; previous injuries; surgical operations; hospital treatments; anaesthesis, and causes. Sexual aspects: whether the donor had a stable partner or not; whether she used contraceptives in the past and present. Reproductive aspects: previous pregnancies, miscarriages and legal interruptions of pregnancy; any children. Habits involving toxic substances: alcohol,
tobacco and other drugs. No strict limits were applied about alcohol intake, cigarette smoking, or drug use. The recommendations were no more than 20 g of alcohol and/or 20 cigarettes per day, and no regular use of drugs. Sports: whether she played sports or not. Potential donors were asked why they wanted to donate their oocytes. Race, weight, size, and hair and eye colour were recorded. The acceptance study continued in those cases in which the family and personal medical histories did not reveal anything that impeded the candidate from donating her oocytes.

Examination

The gynaecological examination entailed the following: breast examination, body hair distribution, visceromegalies, external genitals, vagina, uterus and ovaries. A vaginal sample was taken for culture. In transvaginal ultrasonography, the following aspects were considered: (i) uterus: size, morphology, ultrasonographic pattern and position; endometrial cavity and appearance, and whether it was concordant or discordant depending on the cycle phase. Possible pathologies such as polyps, submucous myomas, haematometra or mucometra; (ii) ovary: structure, size, and position; (iii) uterine tubes: presence or absence of hydrosalpinx and hydatid of Morgagni. Ovarian accessibility for ovum retrieval by vaginal ultrasound was also evaluated.

Blood tests

Where there were no contraindications for accepting the candidate as a donor, blood tests were carried out, consisting of analysis for hepatitis B and C, syphilis, and acquired immune deficiency syndrome (AIDS); coagulation factor VIII, fetal haemoglobin and mitotic karyotype. No blood tests for ovarian activity were performed, since the donors were young and had regular menstrual periods. Neither were blood tests for Chlamydia or cystic fibrosis carried out because of the high costs involved. If the blood test results were normal, the candidate was accepted as a donor. All donors had to sign an informed consent form.

Results

In the last six years, 554 young women have expressed an interest in being oocyte donors. This figure includes non-virgin women over 18 years of age whose medical history was taken. Fifty-eight women (10.5%) had to be rejected because of the data collected in the family and personal medical histories. The causes are shown in Table I. Of the remaining 496, only 243 (49%) continued in the study. One candidate (0.4%) was rejected upon gynaecological examination because she had vaginal stenosis. Fifteen candidates (6.2%) were rejected upon ultrasound screening. In nine cases (3.7%), one or both ovaries were considered inaccessible for follicular puncture. These rejections occurred early on, during a period when an automatic pistol was used to perform ovum aspiration. The shift from automatic to manual follicular aspiration meant that no additional candidates were rejected because of ovarian inaccessibility. Six candidates (2.5%) had to be rejected because of ovarian pathologies; two presented with endometriosis; two had ovarian cysts; one had a dermoid cyst, and one presented with a tumorous cyst.

The vaginal-secretion culture was negative for 205 out of 227 candidates (90.3%), and positive in 22 (9.7%). Candida albicans was identified in 16 candidates (72.7%), Gardnerella vaginalis in five (22.7%) and Trichomonas vaginalis in one case (4.5%). No candidates were rejected because of their culture results. All who had a positive culture received appropriate treatment. Blood tests were normal for 215 out of 227 donors (94.7%). Twelve women (5.3%) were rejected because of their blood test results. In two cases (0.9%) antibodies of the hepatitis C antivirus were positive. No donors tested positive for human immunodeficiency virus (HIV) or syphilis. Two candidates' coagulation factor VIII was not normal (0.9%). An increase of fetal haemoglobin was recorded in five cases (2.2%), and the karyotype was not normal in three cases (1.3%): there were two inversions—one involving chromosome 4 and the other affecting chromosome 9, as well as a case of 47,XXXX/45,XO mosaicism. In all, 215 candidates were accepted as donors, i.e. 38.8% of the 554 candidates whose medical histories were taken and 88.5% of those that continued the study (215 out of 243).

Discussion

There are very real difficulties involved in obtaining donated oocytes to solve the sterility of an ever-increasing number of women. The specific possible risks inherent in the process of oocyte donation are thus added to the ethical-legal problems that semen donation has presented and still presents. The following ethical-legal problems arise with regard to gamete donation for procreation: (i) Should anonymity exist between the donor and recipient? (ii) Should gametes be free or for sale? (iii) Who is liable for the transmission of infectious or genetic diseases from the donor to the recipient? (iv) Do children conceived from donated gametes have the right to know the identity of their genetic parents? (v) What rights or duties does the donor have in relation to any children conceived from his or her gametes? The legal situation regarding these questions varies from one country to another. Some countries have no legislation regulating assisted reproduction, whereas in countries such as Austria, Germany, Norway, Sweden, and some Swiss cantons, donating oocytes is prohibited by law. This practice is legal in Spain, Denmark, France, and the UK.
(Gunning, 1998). In Spain, the Assisted Reproduction Act (Ley de Reproducción Asistida: Boletín Oficial del Estado, 1988) has been in force since 22 November 1988, and was declared constitutional this year by the Constitutional Court after being contested by some members of the conservative People’s Party, who were of the opinion that knowing one’s genetic origin was a constitutional right. This Act, which is relatively liberal given that it was passed while the socialist party was in power with an outright majority, settles three of the five points mentioned above: it calls for anonymity between the gamete donor and the recipient, stipulates that the donor will have no rights or duties towards any children conceived, and that the children will not be able to find out the identity of their genetic parents. Landau (1998) defends children’s basic right to their genetic identity and the right to know who their parents are. In the future, the couple can decide whether they will keep the procedure secret or not. Giving information involves creating a need, but no one can force parents who have achieved pregnancy with donated gametes to inform their child. We perceive that most Spanish couples are not psychologically predisposed to inform the child that she/he was conceived with donated gametes. At any rate, it is the couple’s decision.

The donor’s liability with respect to the transmission of genetic or infectious diseases is a subject which is not addressed in the Spanish law. This liability lies with the medical team, which is required to comply with the legislation in force at the time. Besides taking the donor’s medical history, it is compulsory to test for hepatitis B and C, syphilis and AIDS. If the donor knowingly hid any valid information that could cause a genetic or infectious disease to be transmitted to the mother or child, the donor would be liable. If the donor did not hide any information, the liability pertains to the doctor, and the risk is assumed by the recipient mother when she signs the informed consent form. Therefore, it is the doctor’s responsibility to select the gamete donor correctly. The availability of a greater number of candidates would make it easier to select only the best ones, and would make rejection automatic in cases where there is doubt as to the suitability of the donor. However, if the number of potential candidates is low, the standards for acceptance are lower (Sauer and Paulson, 1992).

Oocyte donations are accepted from the following groups: (i) Donors brought by the recipient couple, their friends or family. In our opinion, this is not a valid solution to the problem, because it is obvious that the group of possible donors a sterile couple has access to is very limited. Furthermore, this system of donor recruitment does not allow the recipients to maintain their sterility problem and their decision to seek donated oocytes as private. The assisted reproduction centres that use this strategy force the recipient to find a suitable donor or give up the chances of having a child. The situation becomes worse if the recipient and the donor live far away from the assisted reproduction centre, or if pregnancy is not achieved after the first attempt. The Spanish law’s requirement for anonymity between donor and recipient means that the oocytes of the donor brought by a specific recipient couple cannot be used by that couple and forces interchange of donors between couples. Moreover, particular ethical issues arise from this way of obtaining oocytes, as exemplified by a case witnessed by our team, where the recipient couple brought their domestic employee to act as donor. We find this option invalid and impractical. Given that it is now unthinkable to expect patients requiring a kidney, medulla, cornea or semen to find a suitable donor, why should the situation be different with respect to oocytes? (ii) Women who are going to have their Fallopian tubes tied. The main problem here is that such women are usually over 35 years of age, which is in itself sufficient reason to reject them. Our experience indicates that this group of potential donors is highly inadequate, and we gave up on this option several years ago. Other authors have published rather scant donation results from this group: of 194 women about to have tubal ligation, only 2.5% were accepted as donors (Feinman et al., 1989). (iii) Women undergoing in vitro fertilization (IVF) to solve their own sterility problem, who share their oocytes with other women. This is a large, but sterile group. Their sterility is often due to genetic illness, and these women are close to or over 35 years on average. In the USA, 45% of assisted reproduction centres provide incentives for these women to share their oocytes (Braverman, 1993). The most relevant problem we see in these cases is that the woman undergoing IVF reduces her own possibilities of becoming pregnant when she shares her oocytes. An infertile woman who wants to have children can never have too many oocytes. Oocytes for donation were obtained from women undergoing IVF who produced 10 or more oocytes (Remohi et al., 1993). However, the chances of producing offspring are 28.3% when six to 10 mature oocytes are obtained, and 41.5% when >10 mature oocytes are obtained (Toner et al., 1993). British Human Fertilisation and Embryology Authority (HFEA) data indicate that for every child born, 39.3 oocytes (of which 16.7 go unfertilized) and 22.6 embryos are required (HFEA, 1998, cited by Ahuja et al., 1998). In our experience, women do not usually accept sharing their oocytes even if the cost of IVF is reduced. Their main objective is to have children, not to save money. When patients cannot afford IVF privately, they go to Social Security centres, where such treatment is free, even though the waiting lists are fairly long. The solidarity of women undergoing IVF is manifested by the fact that they donate the embryos they are not going to use. However, in recent years, more women have preferred to have their embryos frozen rather than donate their oocytes (Quigley et al., 1991). Until 1994, Rosenwaks and Damario obtained only 15% of their donations from this group, and they note a downward trend (Rosenwaks and Damario, 1996). The waiting period for the recipient couple is extended to years with this method of obtaining oocytes. Ahuja et al. defend the concept of sharing oocytes. The group in their study (n = 114) presented with two characteristics worth highlighting: 41% had already had children and 30% were between 35 and 44 years old (Ahuja et al., 1998). In Spain it is illegal for women over the age of 35 to donate oocytes. There is an increased risk of Down’s syndrome and the fertility of these women, which is already low, is reduced even more if they share their oocytes. It has also been stated that oocytes should be shared for financial reasons (Ahuja et al., 1998). These authors argue that IVF is more effective because more children can be achieved by sharing gametes. Even if this were true, more children would be born, but not to the donor. These authors also point out the limited effectiveness of using frozen embryos to achieve pregnancies.
members of marginal sectors of the population may respond to
the donor and the recipient couple, even when the former is a
recipient couple are said to be altruistic, but that may be because
that the five donor groups mentioned above actually receive
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required by the donation process, or a truly altruistic act. In
HFEA makes no reference to oocyte donors (Deech, 1998).
HFEA is hesitant about paying semen donors; it is against the
experience, the student receiving economic compensation is the
most suitable donor and the one that recipients accept best. It
has been stated that the word ‘donation’ implies an altruistic act
and precludes payment in its definition (Shenfield, 1998). The
HFEA is hesitant about paying semen donors; it is against the
idea in principle, but admits that in practice, semen donors are
given £15 per donation plus expenses. The amount paid to cover
expenses is not specified. Is this purchase or compensation? The
HFEA makes no reference to oocyte donors (Deech, 1998).
It is a moot point whether oocyte donation is a sale, a donation
that should involve compensation for the time and travelling
required by the donation process, or a truly altruistic act. In
Spain, despite ongoing controversy, remunerating the donor to compensate for the time taken and the travelling involved is
accepted. Donors could not possibly be expected to invest their
own money in order to donate oocytes. The Ethics Committee
of the American Fertility Society (1994a), the Council of Europe
Document on Human Artificial Procreation (CEDHAP, cited by
Gorril, 1998), the HFEA (1997) and even the French federation
CECOS (Guarin, 1998) accept the idea of giving economic compensation for gamete donation. It is also worth mentioning
that the five donor groups mentioned above actually receive
compensation in one way or another: (i) Donors brought by the
recipient couple are said to be altruistic, but that may be because
the doctor is unaware of the compensation agreed upon between
the donor and the recipient couple, even when the former is a
family member. Gratitude is human and understandable. For
instance, we experienced a case where a recipient woman paid
for the shoes and school books of her sister’s three children in
exchange for her acting as a donor. The pressure placed on the
family member by the recipient woman has been mentioned
(McLaughlin et al., 1998). (ii) Donor women who are about to
have tubal ligation receive this treatment free of charge, and at
public institutions they are given priority over other women on
the waiting list. Thus, they also receive a kind of compensation.
(iii) Women who share their oocytes are also charged less for
the assisted reproduction services they receive, or are given
priority over other people on the waiting list at public centres,
and this can be seen as compensation of a kind. It is very unusual
for a woman undergoing IVF in a private assisted reproduction
centre to share her oocytes without receiving compensation,
unless she has not been clearly informed about how her own
chance of becoming pregnant and having a second child are
reduced. The idea that she might not become pregnant while the
woman who receives her oocytes succeeds in having a child can
be horrifying. The percentage of women undergoing IVF who
also donated some of their oocytes and became pregnant was
20%, compared to 30% of recipient women who became preg­
nant (Ahuja et al., 1996). (iv) For women in general, the eco­
nomic compensation for oocyte donation can be very high: up
to 2900 euros (Braverman, 1993), even when an agency acts as
the intermediary in the donation process (Seibel and Kiessling,
1993). According to the CEDHAP, agencies offering gametes
should not be allowed to make a profit. The economic incentive
could lead candidates to conceal important health information,
and could make the process more expensive for the recipient.
Women from the lowest social classes might attempt to make
money with their oocytes. (v) The amount received by students,
about 750 euros, covers the time and travel expenses involved
in oocyte donation (it may be necessary to make up to 20 visits
to the clinic). When altruistic volunteers do not end up donating
it is usually because of the distance from their home to the clinic,
time commitments, or work commitments (Kan et al., 1998).
Compensation attempts to overcome these objections. The
inconveniences and risks involved in donation are difficult to
quantify. From our point of view, this demonstrates the student’s
altruism when becoming a donor. For the cases of donor recruit­
ment presented in this article, selection and compensation were
carried out by the Fundacio pro-Donacio d’Ovuls, a non-profit
organization. Naturally, the amount paid to donors does not
depend on the number of oocytes obtained.
Where is the borderline between purchase and compensation?
We believe there are two points to be considered: (i) the amount
received, i.e. whether the amount given to the donor is evaluated
as a function of the number of hours involved and the travelling
required for the donation. The amount of money that person
could have earned if she had been working is therefore taken
into account; (ii) whether there is a relationship between the
number of oocytes obtained and the amount received. In this
second case, one could speak of the purchase of oocytes at so
much per unit. The student’s reason for donating her oocytes
and how she will use the money she receives is considered to be
irrelevant. Since the candidates are university students, they
belong to upper- or middle-class families. They do not have
urgent economic needs. In fact, 253 out of 554 (45.6%) aban-
Oocyte donor selection from 554 candidates

...doned the treatment even though they were aware of the economic compensation.

Oocyte donation involves inconveniences such as hormone injections, blood tests, vaginal ultrasonography, and a possible sensation of swelling in the lower abdomen caused by follicle growth. Oestrogen deprivation from GnRHa administration and the reaction against gonadotrophin impurities does not apply to our donors because a short stimulation cycle is used, and the FSH is either pure or recombinant. The risks involved in oocyte donation are those inherent in ovarian stimulation and follicular puncture.

All of the donor groups mentioned above, except for those participating in IVF for their own sake, must assume the risk of ovarian stimulation. This has been used as an argument to defend the idea that only oocyte sharers should be allowed to donate oocytes (Ahuja et al., 1999). In the groups of donors who are not patients, the risk of hyperstimulation is lower than it is for IVF patients because the donors will not receive the embryos, i.e., they will not become pregnant (Sauer and Paulson, 1994; Morris, 1998). This fact is not mentioned by Ahuja et al. (1999).

There have been no unplanned pregnancies among our donors. Other teams have published results showing up to 7% unplanned pregnancies among oocyte donors during donation cycles (Sauer and Paulson, 1994). Some prudent measures to be taken in donor stimulation to further reduce the risk of hyperstimulation are as follows: follicle puncture should be performed on both large and small follicles; albumin should be administered intravenously during oocyte retrieval, and HCG should not be administered when there is a clear risk of hyperstimulation. After handling over 200 donors, we have not experienced any serious cases of ovarian hyperstimulation.

The increased risk of ovarian cancer due to ovarian stimulation has not been proven (Rossing et al., 1994), especially in those cases where the mother did not suffer from ovarian cancer (Whittenmore et al., 1992). We believe it is important to continue monitoring non-patient donors, but at present, the risk of ovarian cancer as a direct result of gonadotrophic treatment cannot be denied, affirmed, or quantified.

There are three main risks resulting from follicular puncture: the anaesthetic, pelvic inflammatory disease (PID), and haemorrhage. These are risks that donors would not be subjected to if they were not donating their oocytes. The risk of PID has been associated with a history of previous PID (Yuzpe et al., 1989; Dicker et al., 1993). Other factors to be considered are antibiotic prophylaxis and vaginal antisepsis. The incidence of PID as observed in two large series is about 0.6% (Bennett et al., 1993; Ashkenazi et al., 1994). Student donors who have not previously suffered from PID, whose cervix–vaginal secretion culture results are negative and who have received antibiotic prophylaxis have an even lower risk of contracting PID. In our experience, only one woman out of 201 (0.5%) suffered from such an infection. The case for possible future sterility caused by PID after follicular puncture is insufficiently documented. In 26 laparoscopic evaluations performed after follicular aspiration, no adnexal adhesions were observed (Amso, 1995). Considerable haemorrhage following oocyte retrieval occurs in 0.4–0.8% of cases (Bennett et al., 1993; Ashkenazi et al., 1994). Of the donors in our study, there was only one case of haemorrhage (0.5%), which required laparoscopic exploration but had no further consequences. The risks caused by propofol anaesthesia controlled by an experienced anaesthetist are very low. We believe that non-patient donors can safely assume the risks inherent to oocyte donation. Ahuja et al. are of the opinion that sharing oocytes allows the recipient to seek treatment in a decent way, without having to resort to offensive advertisements (Ahuja et al., 1999). The signs we post on university bulletin boards read as follows: ‘You are a source of life. Donate your ovules. Students wanted as donors. The ovules will be used exclusively to help infertile couples. Economic compensation: 750 euros’. We do not find this advertisement offensive.

The methodology used in the process of donor selection allows for a high degree of safety with respect to the transmission of infectious illnesses to the recipient. The group chosen is young and not marginal, thus implying a shorter history of sexual intercourse and fewer sexual partners, which in turn lowers the risk of acquiring infectious diseases. None of our donors had suffered from any sexually transmitted diseases in the past. It seems unlikely that the oocyte could be a carrier of infection.

Genetic diseases, however, cannot be completely ruled out. All the blood tests that are compulsory in Spain, as well as those recommended by the Ethics Committee of the American Fertility Society (1994b) were carried out. The availability of a large group of donors facilitates rejection in doubtful cases or when genetic diseases are suspected. Specific analysis to detect the most common genetic pathologies in our population, such as haemophilia A and B thalassaemia further reduce the risk of genetic transmission of the disease to the fetus. The economic cost is a factor that limits more extensive genetic testing. One of the axioms we have learned after more than 20 years of experience with semen donor selection from university students has been applied to oocyte donors: have a large number of candidates so that doubtful cases can be rejected. Karyotype studies are only required in 14% of assisted reproduction centres in the USA (Gorril, 1998). However, in our group of student donors without children, we felt it necessary to carry out karyotype analysis. In three cases out of 227 (1.3%), we found chromosome disorders that could have resulted in miscarriage or fetal deformities. The recipient women may consequently be able to avoid amniocentesis because the oocytes come from young women with a normal karyotype.

Conclusions

From the data and comments described, the following can be concluded:

(i) University students form a large, non-marginal group of educated women for whom altruism plays a part in the donation. Of the current options, this group is the ideal source of oocytes for donation.

(ii) The student donor receives economic compensation that covers the expenses arising from the donation process. It is not a purchase and that is how it is understood by The Ethics Committee of the American Fertility Society, CEDHAP, HFEA and CECOS.

(iii) The risk of donation is considered to be acceptable by the donor, who gives her written informed consent.
This system allows us to meet the demand for oocytes with a reasonable waiting period, without commercializing the process, without asking the recipient to find a donor, and without reducing the chances of the woman undergoing IVF to become pregnant because she shares her oocytes. However, this process requires enormous medical effort: out of 554 informed students who began the selection test, only 215 (38.8%) wished to continue and were accepted for ovarian stimulation.

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