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OPINION

Death and conception

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The complex moral, ethical and legal concerns that have arisen as a result of posthumous assisted reproduction (PAR) are examined in this report. Difficult questions such as what constitutes informed consent, and whether it is ethical to retrieve spermatozoa from patients who are in a coma, are considered. Legal issues, such as whether gametes can be considered as property and the need to clarify the legal definition of paternity in cases of children born in such circumstances, are also discussed, while other points regarding the advisability of PAR, respecting the wishes of the deceased donor and the need to protect the interests of the unborn child, are outlined. The motives of the gestating women, viewing their desire for PAR perhaps as part of the grieving process, and the effects on the children concerned are examined; it is concluded that there appears to be no adverse effect, but this finding might be premature. The report also asserts the need for responsible accounting on the part of fertility clinics, and calls for fairness, transparency and patience to help the bereaved reach an unbiased yet informed decision. This may be achieved by offering ample time for informed and support counselling. Finally, consideration should be expressed for the welfare of unborn child, in a balanced, pragmatic and sensible manner.

Key words: conception/consent/death/gamete cryopreservation/posthumous insemination

Introduction

Rapid innovations in reproductive technology have expanded into new markets and shattered many biological barriers. The field is driven forward by an aggressively entrepreneurial industry worth in excess of $2 billion annually in the USA alone. In line with these developments, new ethical and policy dilemmas have arisen. In particular, it has become possible to retrieve, freeze and store sperm, embryos, and even oocytes or ovarian tissue for years, thereby creating new possibilities and new markets for this technology. Men and women who receive cancer therapy that will leave them sterile, now have the option of storing gametes for use later in life. Stored gametes have also led to situations where the surviving spouse has created offspring after the person's death. The topic of posthumous assisted reproduction (PAR) may sound morbid, but the issues raised by it are the most challenging, difficult and sensitive that are likely to be encountered in the field of medicine, let alone reproductive medicine. Taking and using gametes and embryos in PAR is almost inevitably emotionally charged, and entails complex moral, ethical and legal concerns.

Recent advances in egg freezing, embryo manipulation and tissue harvesting have also meant that new treatments are being rushed into use before they are fully proven to be either safe or effective, potentially placing some women and children at risk of physical and psychological harm. The result of this convergence has been a large, uncontrolled experiment in novel methods of creating families without clinical trials. The first documented posthumous sperm retrieval appeared in 1980 (Rothman, 1980), though several case reports involving post-mortem sperm retrieval have since been published (Nolan *et al*., 1990; Ohl *et al*., 1996; Pozda, 1996; Iserson, 1998). Various methods for retrieving spermatozoa have been described, including surgical excision of the epididymis (Rothman, 1980; Swinn *et al.*, 1998), irrigation or aspiration of the vas deferens (Kerr *et al*., 1997), and rectal probe electroejaculation (Townsend *et al.*, 1996). A survey of fertility centres in the USA (Webb, 1996; Kerr *et al*., 1997) found that a total of 40 centres reported 82 requests for post-mortem sperm retrieval between 1980 and July 1995. In most cases, the sperm were harvested within 24 h of death. Sperm quality could be very poor depending on how long after death sperm retrieval occurred. Viable sperm could be detected by the 'hypo-osmotic swelling' test and used for PAR with ICSI.

The death of a husband is a difficult time for a widow to make a rational decision about whether or not she wants the sperm of a dead husband to be harvested (Aziza-Schuster,

1994; Bahadur, 1996; Strong *et al*., 2000). Because illnesses in the deceased partner are often unanticipated, the patient typically has not given prior written or verbal consent for sperm retrieval. In these situations, physicians who are asked to perform sperm retrieval, sperm storage, and artificial insemination face an array of difficult ethical issues. These issues may extend to asking whether posthumous reproduction is ethically justifiable, and/or whether it is ethical to retrieve spermatozoa from patients who are dead or in a persistent vegetative state but have not given explicit prior consent. If retrieved spermatozoa are then frozen, it is unclear as to what should be the terms of any sperm storage agreement, including the time limits on storage and the person who might be inseminated. Additional dilemmas lie in the form of the legal requirements to have effective consent in place from the deceased, as well as the medico-legal implication for the clinician performing a medical procedure since, in theory, assault charges might be levelled at the clinician. All of these issues also apply to cases in which a husband or partner produces a child with the frozen ova of a dead wife or partner. The advent of ICSI and the potential for cryopreservation of ova may extend the options for posthumous reproduction to the use of the cryopreserved ovum, much as for using sperm for posthumous conception but with the added requirement of a 'surrogate' uterus for gestation to achieve a pregnancy. The use of surrogacy can now in principle be extended to creating grandchildren, thereby adding considerable social and legal complexity to the status of the child (Fraser, 1999). The issues for a child born from partially or fully 'orphaned embryos' in PAR attracted much debate in 1983 when Mario and Elsa Rios died in a plane crash, leaving behind two frozen pre-embryos in an IVF clinic in Melbourne, Australia. There was a suggestion that the embryos should be made available to another infertile couple (Smith, 1985–86).

Gametes as property

Developments in reproductive technology continue to generate new and difficult moral questions for those drafting public policy. Judges often have to interpret the law in relation to new circumstances where there may be ambiguity, and posthumous reproduction can present an array of dilemmas arising from the nature of consent and the process of decision making. In the unusual case of Hecht v. Superior Court, the children of William Kane battled with Kane's lover over possession of sperm that Kane deposited in a sperm bank with the express intention that Hecht, his girlfriend, would use the sperm to conceive children after Kane committed suicide. The court was faced with the novel question of whether sperm was something a person could leave to another by execution of a will (Hecht v. Superior Court, 1993).

In deciding whether sperm, eggs and embryos should be treated as property, one group proceeded to analyse the question in three parts (Steinbock and McClamrock, 1994):

1. They examined the legal concept of property, finding that property rights exist whenever a person has the ability to sell or transfer control of something. However, to answer the question of whether courts should honour Kane's intent to transfer control of his sperm to Hecht, it was necessary to address the moral issues raised by Kane's purpose, and the ethical problems of posthumous reproduction.

2. They analysed the legal and moral arguments against allowing posthumous reproduction, finding that protection of unborn children from potential harm was an inadequate basis for a morally based legal ban on posthumous reproduction.

3. They examined the arguments against commodification of body parts generally, and against the commercialization of reproduction in particular, concluding that the transfer of sperm by will does not involve the concerns which justify opposition to commercial traffic in body parts and reproductive capacities.

Finally, these authors concluded that concerns for individual autonomy and privacy in matters of reproduction justify allowing the transfer of sperm by will.

Whilst sperm has not specifically been classified as being 'property' in the sense that it cannot be passed on like a chattel, UK and European laws seem unclear on its status. Understandably, human body parts or products cannot be sold for profit. However, in transporting sperm across EU countries, sperm is classified as 'goods' and unavoidably becomes property.

In the UK, although the embryo is often regarded as being special, it is not accorded special legal status, in view of the fact that neither is the fetus. In this sense it is somewhat unclear what status an embryo might be accorded for the purpose of transfer across European borders.

Legal and social status of the child

Following conception, the child has been usually considered the rightful heir of the deceased father. There are few ethical or legal problems raised by posthumous births, if due to an act of fate. The question of whether starting a family was prudent if death could reasonably have been anticipated will always arise, and in particular for patients with cancer or HIV.

In contrast, posthumous conception or reproduction is a matter of choice and raises more ethical, practical and legal questions for physicians, policy makers, society and those involved in the practice of reproductive medicine. Equally, there is a need to balance a range of interests and concerns, which extend from the fabric of society, religion, interests and rights of the deceased donor(s), the gestating woman, the prospective rearing parent(s) and, above all, to any children that may result.

The donor

In general, decisions relating to whether or not to have a child have been considered a private matter and a fundamental right of individual adults, but there are limited precedents on how this might be expressed or respected after one's death. In the UK, it is imperative that the donor has given their written informed consent. This is normal practice when the donor is undergoing cancer or infertility treatment where the opportunity arises to bank gametes when the patient is in a reasonable mental state and capable of decision making. In fact, within the UK, it would be illegal to store sperm, oocyte or embryos

without the written consent of the genetic provider(s) as this would constitute a breach of the Human Fertilisation and Embryology Act (HFEAct, 1990).

In our culture, most people do not expect that their gametes will be used for procreation after death. As this possibility is rarely contemplated, people generally do not make their views regarding this practice explicit. In the vast majority of cases, then, considerable uncertainty exists concerning the wishes of the deceased in this regard. The claim might be made that, as it is possible that using the deceased's gametes for procreation would have been consistent with that person's wishes, a request to do so should be granted. However, it is both unfair and undesirable to place the onus upon individuals to state their opposition to posthumous conception.

The opportunity to store sperm or oocytes can be limited for the ordinary and apparently healthy person who previously had no cause for storing the gametes. A landmark UK case involved Mrs Blood [Regina v. Human Fertilisation and Embryology Authority (HFEA), exp. Blood, 1997], whose husband, when in a coma, had sperm retrieved surgically and frozen upon her request; the patient later died. It was deemed that effective consent, which must be in written form, was not in place before the taking and freezing of gametes. It was even felt that there may have been a case for raising assault charges against the clinician who undertook the retrieval procedure. The Appeals Court also recognized that informed consent was crucial and it agreed with the High Court decision in so far as treatment in the UK was concerned. It did, however, conclude that, in failing to exercise its discretion to facilitate treatment abroad, the HFEA had not been properly advised as to the importance of European Community law in relation to cross-border treatment, and had been over-concerned with the creation of an undesirable precedent—something which was impossible given the ruling that the original storage was illegal in the absence of written consent. The case was therefore remitted to the HFEA who exercised their discretion, and the sperm was released to be used successfully in Belgium. Had the sperm been retrieved and not frozen but used immediately, then the provisions of the HFEAct 1990, s4(1)(b) would not have applied. In English law, a child born from posthumous insemination or to a lesbian or single woman using donated sperm does not have a legally recognizable father on the birth certificate. As a result of Mrs Blood's representation and potential resort to the Human Rights Act (HRAct, 1998) (Bahadur, 2001), it seems that a Parliamentary Bill which allows the naming of the father in PAR may follow. In the UK, the 1990 HFEAct does not prohibit posthumous storage and use of spermatozoa, but it does require the man's prior written consent for sperm storage. Thus, post-mortem retrieval, storage and insemination would be permitted with valid written consent.

In France, the widow of cancer patient Alain Parpalaix obtained a court's approval to be inseminated with his spermatozoa after his death, arguing that he had wanted his stored spermatozoa to be used in this way (Aziza-Shuster, 1994; Benshushan and Schenker, 1998). After the Parpalaix case, the Centre d'Etude et de Conservation du Sperme Humain (CECOS) adopted an explicit policy of not permitting post-mortem insemination, and this policy was upheld by the French courts (Aziza-Shuster, 1994). In 1994, France passed a law forbidding posthumous insemination (Lansac, 1996). Belgium and the USA currently permit post-mortem insemination without the man's prior written consent (Brahams, 1996, 1997). Germany, Sweden, Canada and the state of Victoria, Australia have legislation that prohibits PAR (Bahadur, 1996; Webb, 1996), while Western Australia has regulations that forbid the posthumous use of gametes (Webb, 1996). With regard to pre-embryos, Israel allows their transfer to the wife within one year of a husband's death, even in the absence of his consent; however, if the wife dies the pre-embryos cannot be used (Benshushan and Schenker, 1998).

Many international programmes for assisted reproduction have consent forms that stipulate the disposition of gametes and embryos, including their disposition after the death of one or both gamete donors or after a certain period of time. If the use of gamete or embryo after death is declined, this should be honoured. In the UK, this would also mean the destruction of an embryo irrespective of the surviving genetic contributor's wishes. This is because effective consent is deemed not to be in place. Whether a time limit should be placed on how long after death such gametes or embryos might still be used is problematic. It is not clear how the interval between death and use would affect the process and the outcome, but the general presumption is that such use should occur within an interval of no more than a few years. In our clinic, amongst the 21 out of 40 widows (52.5%) requesting continued sperm storage, there has been little evidence of its subsequent use, which reflects just how strong the psychological bond had been with the deceased, and the complex mourning that ensues (Bahadur, 1996). After seven years, even those 11 widows who had expressed serious intent to use (or were preparing to use) frozen sperm appear not to have resorted to PAR. Their desire to continue to maintain the sperm without use seems also an important psychological marker in the grieving process. Since issue of the report in 1996, details of two widows have emerged who, once in a newly-found stable relationship, requested disposal of the deceased's sperm sample.

A reluctance to perform PAR is widespread, and two-thirds of UK clinics share a culture that seems to be the legacy of the Warnock Committee which, in setting the recommendations of the HFEA, actively discouraged posthumous reproduction. This type of blanket ban by a clinic on PAR may be contrary to the HRAct 1998 (Bahadur, 2001), and may possibly lead to further legal complications for those clinics adopting such an entirely negative policy.

On balance, it is necessary to ask whether posthumous reproduction would promote—or interfere with—important human aims. In the UK and also to some extent Europe, future ethical debates raise fears about increasing the choice and power that individual patients possess, as the scope for interpretation under the HRAct takes on additional dimensions (Bahadur, 2001). The HRAct declares that public bodies should not interfere with privacy or family life unless they can justify it in terms of protecting public health or morals, or protecting the rights of others. This means for instance that the HFEA cannot simply ban anything it considers ethically unacceptable.

Under the HRAct, the HFEA would have to prove its right to infringe on individual choice and articulate quite precisely why it is interfering, in terms of public health or morals.

The gestating woman

The question of why a woman should use the sperm of the deceased seems eternally interesting, and it is doubtful whether a solid answer will ever be provided in view of the fact that there are so few cases. However, it is possible to speculate on what the reasons might be. It could be an affirmation of mutual love and acceptance, or it could be an expression of strong acceptance to say to another, in effect, 'I want your genes to contribute to the genetic makeup of my children'. A relationship can be deepened and enriched by this sort of affirmation; moreover, such affirmation can exist when the procreation is planned to occur after the death of one member of the couple. For example, in the Hecht case it was reported that the plan to attempt post-mortem reproduction had this sort of special meaning for the couple (Hecht v. Superior Court, 1993). Furthermore, when one member of the couple survives, that person can have reasons for valuing the procreation in question. The experience associated with pregnancy and child rearing may be a significant part of the mourning process and a way to gain acceptance of continuity to resume normal life. In Mrs Blood's case (UK), she made it amply clear that she could if she wanted, use an unknown donor's sperm, but it was her late husband's sperm that mattered and was understandably meaningful to her, since they had taken marriage vows beforehand and spoke of having babies.

In the case of a husband wanting to use frozen embryos or ova for posthumous reproduction after his wife has died, a gestational carrier is required. The surrogate should be aware of the circumstances and informed that this would be a posthumous pregnancy. The woman would not be considered a traditional surrogate if she were planning to be a rearing parent as well; for example, if she married the man after his wife died. In other instances, all of the concerns that arise with the use of gestational carriers also would apply generally. In the UK, the gestating mother would be the legal mother and parental rights would need to be gained by the commissioning parent(s) or person(s). As there is no known case in this category it is difficult to describe just how complex the issues could be, although we can imagine their complexity. In some countries, embryos could be donated to infertile couples, and in these cases the recipient couple ought to know of the unusual circumstance before receiving the gift.

The children

The effects on a child of being the product of posthumous reproduction is not completely known. The concern with PAR is that bringing the child into a single-parent household would be harmful to the child. However, a serious problem with this objection has been pointed out (Robertson, 1994, 1998; Strong, 1997). Specifically, the objection overlooks the fact that the acts that supposedly harm the child are the very acts that bring the child into being. Because the objection overlooks this, it misuses the concept of harm. A key point is that persons are harmed only if they are caused to be worse off than they otherwise would have been (Feinberg, 1984). The claim that post-mortem insemination harms the children who are brought into being, therefore, amounts to saying that the children are worse off than they would have been if they had not been created. It fails to make sense because it tries to compare non-existence with something that exists.

If pregnancy and birth occur within the context of marriage in which one partner has died, the effects on the child might not be very different to those which occur in the much more common case of posthumous birth, in terms of legitimacy and inheritance. In the usual case of posthumous reproduction, the genetic father or mother would be deceased at the time of conception or implantation, whereas in posthumous birth the conception takes place with both parents alive but with the father, or rarely the mother, having died before the time of birth. In either case, the child at birth would be subject to the burden of having lost one genetic parent. When reproduction takes place as a consequence of a loving relationship in which both partners were desirous of children, but a pregnancy is frustrated by the death of one partner, posthumous reproduction may well become acceptable both socially and culturally, at least in time. The psychological impact on the child should be minimal and probably within the range of experiences seen in some parallel studies on for example single parent families (Golombok, 1998; Pennings, 1999).

Following posthumous conception, the legal and social status of a child born using frozen gametes after the death of the gamete provider raises complex issues, even if the insemination and pregnancy occurs with the wife of the dead man. Since the role of assisted reproduction has not been well factored into common law or social and ethical judgements, a child born from conception and pregnancy after a man's death may not always be attributed to him for purposes of inheritance and legitimacy. This tradition has been a formidable obstacle to changing attitudes in the face of the new assisted reproductive technologies.

In the UK, PAR has been thought out in perhaps more detail than most Western countries. The taking, freezing and use of sperm are based upon explicit written consent being in place prior to the man's death. However, in any subsequent use, the child does not have a legally recognizable father on the birth certificate, and so may not qualify automatically for inheritance rights. This position appears both obtuse and paradoxical: prior to posthumous insemination clinics must take account of the 'welfare of the child,' and yet the interests of the ensuing child seem disregarded by law subsequent to insemination. This may disadvantage the child by, for example, requiring him or her repeatedly to explain to schools or public authorities why the father does not exist. These dilemmas may extend to emergency healthcare where history of the genetic parents may be needed. Furthermore, all these could compound the fears of the widow when signing any form—and especially a legal document—which is unlikely to cater for a legally fatherless child. With the HRAct (1998) in mind, Mrs Blood and another widow have exerted legal pressure on the government, and it would appear that a bill in the UK may be passed

to enable this subtle but significant shift to posthumous paternal recognition to occur, although it is expected to fall short of securing inheritance rights. Irrespective of the circumstances, it would appear that the development of Liam, Mrs Blood's toddler, who is surrounded by two sets of grandparents and supporters, is in line with that of an ordinary child.

Another interesting point is the fact that the woman (widow) will not have a husband at that time of PAR and therefore could not be regarded as a married woman for the purposes of procreation. It may follow from this argument that the deceased husband is therefore specifically excluded from describing the paternity of the child. Equally, however, a compassionate view seems the only credible way of creating a birth record for the child, which does not contradict itself, since common sense will dictate that the cryopreserved gametes do exist. In the United States, for example, if conception occurs after the man's death, the question of paternity is not so straightforward. Some states in the USA have adopted the Uniform Parentage Act, according to which the deceased man would be presumed to be the father of the child provided that the couple had been married and the birth had occurred within 300 days of the man's death (Gibbons, 1997). If birth occurs after 300 days in those states, or if birth occurs in states without statutes addressing posthumous conception, then current law provides no basis for presuming that the deceased is the legal father (Gibbons, 1997).

PAR and the need for consent

We need to grapple with the complex moral issues emerging from the advent of medical techniques which mean that, as a result of cryopreservation procedures, posthumous conception has become a reality. It is very moving that a bereaved family member attempting to cope with the tragic death of a loved one may consider harvesting the deceased's gametes for procreative purposes. Any coherent ethical framework in this area must be sensitive to the many interests at stake, which need to be identified.

One can easily overlook the interest of the dead, as they might be construed as having no voice. Some may claim that we cannot speak sensibly of the dead as having 'interests' which can be 'harmed' by the conduct of surviving parties because, once a person dies, that individual no longer has any interests and therefore concepts of 'harm' or 'benefit' seem redundant. It is clear, though, that certain acts committed after a person's death can either harm or promote that individual's interests. For example, a posthumous event that destroys a deceased person's reputation harms his or her interests because it adversely affects the way that individual is remembered after death.

Specifically, what significance ought to be afforded the deceased's interests when we have little or no evidence regarding his or her wishes for, or objections to, posthumous procreation? Posthumous conception affects the deceased's interests, because it redefines the content and outlines of the deceased's life. When it occurs without the person's consent, it deprives an individual of the opportunity to be the conclusive author of a highly significant chapter in his or her life. Indeed, this is one of the reasons why any attempted analogy between posthumous conception and organ donation fails. Controlling the fate of gametes is different from, and more significant than, controlling the fate of cadaveric organs, because procreation is central to an individual's identity in a way that organ donation is not. Therefore, as the consequences of posthumous conception profoundly affect core values held by the deceased while alive, respect for autonomy requires that this procedure should not be permitted unless the deceased's consent is clear.

As a society, we recognize that most people find it important to attempt to control certain post-mortem events. Consequently, we have developed procedures that allow us to control certain matters after death, such as the transfer of property, the nomination of beneficiaries, or the transplantation of organs. Given that it is important to individuals that their wishes be respected after death, it is also important that they have the assurance that their bodies will not be used in a manner inconsistent with their expectations. When the living can only speculate about the deceased's wishes, posthumous conception should only cautiously be permitted. Even if there is evidence that the deceased desired parenthood in life, it is a considerable leap to assume that he or she would have wished to become a parent posthumously.

If the deceased person's wishes are to be safeguarded adequately in posthumous reproduction, clear evidence of intent to reproduce after death should be required. The strong procreative interest of family members seeking posthumous conception may tempt them to portray the deceased's values and desires in ways that are not necessarily compatible with the interests of the deceased. Given that posthumous procreation, unlike organ donation, entails significant and permanent implications for the deceased's family, the potential for a serious conflict of interest justifies a far more limited decision-making role for the family. Obviously, difficulties could arise in estate distribution after PAR, although no cases appear documented.

Policymakers must identify and evaluate important interests, and codify them in a workable policy. In this sense, the UK HFEAct 1990 provides exemplary directions as to the need for a written and informed consent prior to any storage and use of gametes or embryos. Contentious areas however remain, such as the non-recognition of a genetic father or inheritance rights.

What defines a parent?

Of all the legal and social complications wrought by modern fertility techniques, perhaps the most significant are those involving embryo ownership and parentage. The courts have not been enthusiastic in their new role as arbiters of parenthood and 'we can find ourselves in a situation where nobody has presumptive parental status'. That is what happened to Jaycee Buzzanca. The infertile couple who arranged for her creation, John and Luanne Buzzanca of Orange County, California, hired a married woman, Pamela Snell, to carry a child to term for them—a child resulting from the use of the sperm and egg of anonymous, unrelated donors (Weiss, 1998). The situation became complicated when, in March 1995, one month before

Jaycee was born, John filed for divorce—an act he claims relieved him of parental responsibilities, including child support. According to California law, fatherhood is defined by biological parentage or by marriage to the child's birth mother. Since John Buzzanca fits neither definition, he claims he has no fatherly obligations. Luanne Buzzanca wanted to be Jaycee's legal mother, but was neither her biological mother nor her birth mother. The surrogate mother did not qualify either, having signed a contract relinquishing her maternal rights after birth. And the egg and sperm donors, who sold their genes with no intention of becoming active parents, remain anonymous.

So it was that Orange County Superior Court Judge Robert D.Monarch ruled in September that Jaycee had no legal parents, although she now lives with Luanne. The case is emblematic of the kinds of quandaries arising as novel baby-making techniques emerge. In the UK, the gestating mother is the legal mother, and if surrogacy is involved then parental rights have to be applied for by the providers of the genetic material.

What if a donor dies?

Matters become even more confusing when the parent is long dead. Julie Garber, a California real-estate developer, was aged 28 when she succumbed to acute lymphoblastic leukaemia (Peres, 1997). Before embarking on a course of chemotherapy and radiation that would make her infertile, she arranged with a sperm bank to have a dozen of her eggs fertilized and the resulting embryos frozen. Her hope was to have them implanted in her uterus after her recovery. The Garber case added another dimension: should an individual have the right to inherit someone else's genetic material, like any other form of property, and then hire a surrogate to bear a child who has no parents? It also raises other questions: does an individual's right to reproduce—or not reproduce—survive death? The Garbers admitted that their daughter left no advance directive on how she wanted her frozen embryos used, but insist they are carrying out her will. When Julie died, her parents hired a surrogate mother to bring their daughter's ungestated offspring to term—an act they said fulfilled one of her last wishes. The plan was to give away any resulting offspring to their other daughter, Julie's sister. After three attempts, the venture ended when the last of Julie Garber's embryos was rejected by the surrogate mother's body a few weeks into pregnancy.

The American Society for Reproductive Medicine recommends caution when posthumous reproduction is being considered, although the organization allows that the practice is not inherently wrong when the deceased has left express permission. Little is known however about the psychological effects on a child who eventually learns that one or both parents were dead long before that child's own gestation began. Some experts have begun to complain that in the modern conception industry, the rights and privileges of potential parents—even dead ones—are gaining precedence over the welfare of the children. Even where written consent was present, a High Court appeal has been launched by the UK widow 'Mrs U' casting doubt on the effectiveness of consent. In this case, a clinic nurse allegedly asked or influenced the husband to alter the consent form to request 'discarding of samples' in the event of death (Centre for Reproduction v. Mrs U, 2002), to bring the consent in line with the clinic's position. The Court of Appeals (UK) has sided with the clinic and concluded that the withdrawal of consent to posthumous use of sperm was not because of undue influence (O'Hanlon, 2002). Another report (Soules, 1999) records the experience of receiving a late-night telephone call from a 21-year-old woman whose 19-year-old sister was brain dead 12 h after a motor vehicle accident. Although the family was willing to donate her organs, it was withholding final consent until the medical staff at another institution could arrange to have her ovaries harvested and her eggs preserved. In the UK, a couple aged 60 years wished to have grandchildren by using their late son's frozen sperm and hiring a surrogate. Although written consent was there for use, it did not specifically name the woman who was to be inseminated, since the son was single at that time (Fraser, 1999), thereby frustrating attempts to pursue PAR. It is also known for an unrelated person to request a sample, namely a nurse and a social worker, who each said they were acting on behalf of an unidentified third party (Cohen, 1998).

How is quality maintained?

Unfortunately, fertility clinics around the world are littered with a history of lost, damaged or misappropriated sperm, eggs and embryos. In the most famous case, doctors at a clinic in Irvine, California, implanted dozens of embryos into the wrong women in the early 1990s. That clinic is now closed. In Rhode Island, Carol and David Frisina filed a lawsuit against the Women & Infants Hospital for the mysterious disappearance of six of the nine embryos they had frozen there (Weiss, 1998). A Providence clinic is also defending itself against a suit brought by Vickie and Robert Lamontagne, who alleged that a 1995 error led to the disappearance of three of their embryos. Doctors first informed Vickie Lamontagne of the loss while she was in hospital and about to have the embryos implanted into her uterus (Weiss, 1998). In the UK, there is an ongoing case against an embryologist and gynaecologist from a Hampshire clinic in relation to false accounting and misappropriated embryos. More recently in the UK, a failure of sperm bank maintenance appears to have compromised the sperm of 296 cancer patients, causing clear distress to their potential loss of fatherhood, as well as to the motherhood of six widows (Rogers, 2002). All these situations highlight the need for better accountability, record-keeping and auditing, or some other aspect of quality control. Regulation, too, may be deficient here, since the UK's renowned HFEA gave the Hampshire clinic clearance only weeks before the problems surfaced. What is clear is that people given the responsibility of looking after and using frozen gametes and embryos should be of a high calibre. These issues are especially important if one is to avoid any disappointment over not meeting the bereaved's basic expectation.

Conclusions

It is clear that we have little real understanding of the motivating factors behind PAR, which will for generations

attract interest and curiosity because they lead to a blurring of the very boundaries between life and death. This unique topic is riddled with complex and sometimes conflicting legal, ethical and moral issues, which should be carefully—and above all sensitively—taken into account. Whilst it is preferable to have explicit consent, cases around the world are likely to occur where the wishes of the dead and the living will have to be deciphered either through local hospital committees or by courts. PAR needs to be approached openly and sensitively, but caution must be exercised in encouraging it. In particular, market forces must not be allowed to decide the outcome. Prolonged counselling and delays have shown that widows who have attached themselves to their late husbands' sperm have eventually not utilized it, or have chosen to discard it. Moreover, it also seems that denying these women may further encourage them to utilize PAR. The situation also calls upon fertility clinics, when dealing with the bereaved, to display transparency, fairness and patience in order to help these individuals—who are in a unique situation—reach an unbiased but informed decision through a series of informed and supportive counselling. Finally, consideration for the welfare of the unborn child should be maintained in a balanced, pragmatic and sensible manner.

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