ARTICLES

Birth after death: questions about posthumous sperm retrieval

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Abstract

There are guidelines in India for assisted reproductive technology but not specifically for posthumous assisted reproduction. The ethical concerns of using sperm from a dead man either with his explicit prior consent or by inferred consent, which is not easy to determine, need to be examined. Risks associated with this medical procedure, such as possible genetic defects, must be researched further. Questions about a time limit on storage of the sperm and its specific recipient are also important. Although a case of posthumous retrieval of sperm has not been reported in India, such a request may soon arise and it is time to start discussing these issues.

The retrieval of sperm from a dead patient for the purpose of procreation is a procedure that raises social, ethical, medical and legal issues. Rothman first reported viable post-mortem retrieval of sperm in 1980 from a 30-year-old man who became brain dead after a car accident (1). Several cases of sperm retrieval have since been published (2,3,4). The first pregnancy after post-mortem retrieval of sperm was reported in 1998 and the subsequent birth was reported in March 1999 (2).

Sperm can be retrieved using various methods including surgical excision of the epididymis, irrigation or aspiration of the vas deferens, rectal probe electroejaculation and orchidectomy (1,2,3,4). Requests for retrieval of sperm are infrequent; 82 were reported in a 1997 study in the US, of which about one-third were met (5). As more people become aware of successful sperm retrieval, requests from family members are likely to grow (2). Although no case has been reported in India, such requests may arise in the future.

National policies on posthumous assisted reproduction (PAR) and procreation vary. Israel allows removal of sperm from a dead man's body at the request of his wife or common law wife and allows transfer of the sperm to the wife within one year of the husband's death, even in the absence of his consent. If the wife dies, the sperm cannot be used (6). Germany, Sweden, Canada and Australia prohibit PAR. The 1990 Human Fertilisation and Embryology Act in Britain does not prohibit posthumous storage and use of spermatozoa, but it requires the man's prior consent. In 1994 France passed a law forbidding posthumous insemination. Belgium and the USA permit post-mortem insemination without the man's prior written consent (2,3,7). There is no legislation or statutory law in India for PAR. However, the Indian Council of Medical Research and the National Academy of Medical Sciences have proposed guidelines for assisted reproductive technology (8).

Ethical and legal considerations

Is it ethical to retrieve sperm from a dead person? Did the deceased person give his consent to such a procedure? If consent was given, it is not unethical to extract sperm for procreation, according to the general consensus (2,3,5). However, it is rare for a healthy young man to anticipate a premature death and even more rare for him to discuss if he would want his sperm to be collected after death so that his widow could bear his child (5).

As in the other areas of medicine where a decision has to be made in the absence of prior consent, a decision based on the inferred consent of a patient is recognised as a way to respect the patient's autonomy (2). It is also considered disrespectful to do anything to the dead body that a person might have objected to when alive (2,3). In such a context, the family members might be asked whether the patient had expressed a wish for posthumous sperm retrieval and if it can be reasonably inferred that the patient would approve of such a procedure.

If it is reasonable to make the inference, two additional factors would support an ethical decision to retrieve sperm. First, if the wife were requesting the retrieval and insemination then carrying out the request would respect her procreative choice. Second, it can be argued that carrying out a request for sperm retrieval can give emotional support to a family grieving the death of a loved one (2).

The situation is somewhat more complex in India. Can a physician in the Indian social context judge the wish of a patient from interviews with his wife or family members? It might be a difficult time for a widow to make a rational decision (3). Pressure from the family may complicate the situation. The problem is compounded by the time limitation for collecting the sperm, which might require a quick decision.

Would a child born by PAR be "legitimate" in legal terms? The Indian Evidence Act presumes in favour of the legitimacy of a child born during the continuance of a valid marriage between his mother and any man, or within 280 days after its dissolution (by death or divorce) if the mother remains unmarried. A child born through posthumous sperm retrieval would thus be legitimate (8,9).

Social and medical implications

The effects on a child of being the product of posthumous reproduction are not fully understood (3). Would the child have

the right to know the circumstances of its birth? What would be the social implications for such a child? Would people in India accept that a woman who has lost her husband has conceived from his posthumous sperm? Would the child be at a disadvantage being brought up only by its mother? These issues must be addressed before PAR is used in India.

The technique of intracytoplasmic sperm injection (ICSI) and the potential for cryo-preservation of sperm makes posthumous reproduction possible. However, ICSI has not been critically evaluated in animals before introducing it to human beings. This raises medical concerns about the transfer of genetic defects to the next generation. The frequency of sex chromosome abnormalities is higher in children born of ICSI procedures compared with the normal population.

When ICSI is used in posthumous reproduction, the process of fertilisation dramatically changes. There is no fertilisation occurring *in-vivo*, so the physiological maturation of the sperm, its selection and penetration through oocyte investments and its influence on the embryonic spatial patterning, are bypassed. The bypassing of a part of the process of natural selection and some early developmental mechanisms raises questions about the possible reproductive risks to the offspring (8). Some studies of children born following ICSI treatment say they show no disconcerting neonatal evidence (10).

Should there be a limit on the time for storage of sperm after death? Many international ART programmes include consent forms that stipulate the disposal of gametes and embryos, including their disposal after the death of one or both donors or after a certain period (3). In our view, a storage agreement should stipulate the terms of storage and the time period, the payment to be made and the action to be taken if the charges are not paid. If the wife dies, who should get the sperm or when it should be disposed of, must also be clarified.

Sperm quality could vary depending on when the sperm is retrieved. In some cases, the sperm was retrieved 30 hours after death (5). In most cases, the samples were retrieved within a few hours after death. More research is required to ascertain for how long sperm retrieval is viable in a post-mortem state (3) and particularly in India's environment.

Should there be restrictions on who can be inseminated with the sperm? Can the sperm be made available to inseminate another woman, perhaps as an anonymous donation? These questions suggest that it would be appropriate for the storage agreement to stipulate if the sperm is to be used only to inseminate a specified individual.

The interest in embryonic stem cells is growing because of their potential use for developing spare organs or replacing defective tissues. ART clinics are the only sources of embryonic stem cells. Spare embryos are frozen and returned to the owners, or donated to infertile couples with the consent of the owner, or discarded after five years using a suitable protocol (8). In India, the ICMR/NAMS Committee draft guidelines recommend complete prohibition on sale or transfer of human embryos or any part thereof in any form directly or indirectly. It restricts research on embryos to the first 14 days and to be conducted only with the permission of the owner of the embryo (8).

The day is perhaps not far away when a request for post-mortem sperm retrieval arises in India. It is important to start comprehensively discussing the many complex issues that arise from such a procedure.

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