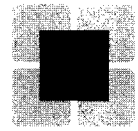

Ethics issues and fetal tissue transplantation

AN ELDERLY PATIENT with Parkinson's disease is being cared for by his 38-year-old daughter, who decides to be artificially inseminated with her father's sperm. Upon becoming pregnant, she plans to have an abortion so that some of the aborted fetal tissue can be transplanted into her father's brain with the hope of reversing his disease.[1]

For some, this hypothetical scenario illustrates technology out of control, tumbling and crashing down "the slippery slope." For others, this is a marvel of medical research with the potential to benefit millions who have neurologic, endocrinologic, and immunologic diseases and disorders. For many, the possibility that this scenario could occur raises the moral question: Although we *can* do this, *should* we do this? Should fetal tissue transplantation research proceed, and if so, under what conditions?

In response to these complex questions, US Assistant Secretary for Health, Robert E. Windom, announced in March 1988 that he was temporarily withholding approval of all therapeutic transplants using cadaveric human fetal tissue from induced abortions and supported by National Institutes of Health (NIH) funding, pending the assessment of an NIH Ad Hoc Expert Advisory Panel.[2,3]

FETAL TRANSPLANTATION RESEARCH

Fetal tissue has therapeutic potential because of several unique properties.[4,5] It proliferates and grows rapidly. It adapts to a new environment and forms connections readily with host tissues. It has the capacity to stimulate growth of new blood vessels needed for its nutrition, and it has a unique tolerance to long-term freezing and storage. Also, it is immunologically "naive," generally failing to stimulate a rejection response from the recipient's immune system.

Animal studies indicate that the disorders and diseases that may respond to fetal-cell transplants include insulin-dependent diabetes, Parkinson's disease, Alzheimer's-type senile dementia, muscular dystrophy, Huntington's disease, epilepsy, stroke, leukemia, and immunologic disorders.[6–8] Grafting human fetal pancreas to nude mice (a strain that has no functioning immune system) has demonstrated that human fetal pancreas can grow, differentiate, and function in animals.[9,10]

Attempts to treat Parkinson's disease and diabetes with fetal tissue transplantation have had ambiguous results.[11–22]

THE ABORTION ISSUE

Fetal tissue from induced abortions is more desirable than tissue from spontaneous abortions, which, among other problems, may be genetically defective.[23] For many, induced abortion as the primary source for human fetal tissue transplantation is the focal point for much of the ethical debate. Within the wider circle of debate, additional disagreements arise concerning the use of living *v* cadaveric fetal tissue, and the identification of an appropriate "consenter" to the "donation."

Between 1.3 and 1.6 million abortions are induced each year in the United States. Worldwide, that figure is estimated to be 32 million. For some, these statistics reflect a national and international atrocity open to comparisons with the Holocaust and the medical experiments of Nazi Germany.[24] The extension of this view sees the use of even dead fetal tissue for transplant as complicity in and cooperation with moral evil, "a morally unacceptable collaboration with the abortion industry."[25] This position presumes the need for proxy consent for donating the aborted tissue; furthermore, it asserts that a woman who intentionally aborts a pregnancy forfeits her role in determining the fate of the aborted fetus[3] and, therefore, cannot give proxy consent.

A crucial premise of this position is a perceived moral unity between the actions of induced abortion and cadaveric fetal tissue transplant: The two actions are

viewed as a cohesive unit to which a single moral judgment applies. A negative judgment about the morality of abortion is extended to all other actions that depend upon the existence of the dead fetus.

The opposite moral position begins with the premise that abortion and cadaveric fetal tissue transplantation are physically distinct and therefore demand separate ethical evaluations. Even if induced abortion is viewed as inherently "immoral," the judgment of immorality applies only to the act of abortion when the abortion is performed for reasons unrelated to transplantation. The act of transplantation must be judged morally and separately on other grounds, such as benefit, harm, and risks to the recipient.

To clarify this point, comparison is made with organ transplantation from suicide, accident, or murder victims.[26] Such transplants do not imply societal encouragement of accidents or moral approval of suicide or murder. Yet when such deaths occur, the separate physical act of transplanting organs from these victims is not viewed as immoral. The two acts are given separate ethical evaluations. Similarly, induced abortion and fetal tissue transplant should be judged separately.

To the charge that participation in the transplantation of fetal tissue from induced abortion is to be compared with the actions of Nazi physicians, the counterargument is made that the Nazi experiments were carried out on live, unconsenting patients who were clearly harmed. Fetal tissue transplant research uses the remains of dead fetuses that cannot be harmed,[3] and the research can be designed to include some form of proxy consent, maternal or otherwise.

THE NIH PANEL

The NIH Advisory Panel addressed 10 questions posed by Assistant Secretary Windom, summarized as follows:

1. Is an induced abortion morally relevant to the decision to use human fetal tissue for research?
2. Would such research encourage women to have abortions?
3. Does the process of obtaining informed consent for fetal tissue research constitute an "inducement" toward pregnancy termination?
4. Is maternal consent sufficient for the use of the tissue?
5. Should the donation of fetal tissue between family members, friends, or acquaintances be prohibited?
6. What impact would fetal tissue transplantation have on the procedures used to perform abortions?
7. What steps are involved in moving the tissue from the source to the researcher, and what place should payments have in this process?
8. Do specific state-level restrictions for research on fetal tissue after an induced abortion apply to fetal tissue transplantation?
9. Have enough animal studies been performed to justify proceeding to human transplants?
10. What progress has been made in the use of fetal cell cultures?

In the Advisory Panel's final report, 18 of the 21 members concluded that it is "acceptable public policy"[3] to support transplant research with fetal tissue, because the morality of abortion, which is the source of the tissue, can be ethically isolated from the morality of its use in research.

SEPARATING THE ISSUES

This perceived ability to separate the ethical evaluation of two different actions led the Advisory Panel to recommend the following guidelines for separating abortion decisions and procedures from fetal tissue procurement and its use in research and therapy:[3]

1. The decision and consent to abort must precede discussion of the possible use of the fetal tissue and any request for such consent.
2. In the consent process for termination of pregnancy, there should be no mention of the possibility of fetal tissue use.
3. A pregnant woman should not be "induced" by coercion or promise of financial reward or personal gain to terminate a pregnancy.
4. Designating the transplant-recipient should be prohibited and anonymity should be maintained between donor and recipient.
5. The potential use of the fetal tissue should not influence the timing and techniques of an abortion.
6. No compensation or remuneration should be paid to the woman to donate the fetal tissue or to the clinic for its efforts in procuring fetal tissue, other than for reasonable expenses incurred in retrieval.
7. Separation should be ensured between abortion and fetal tissue research procedures, facilities, and personnel.
8. The pregnant woman's consent is sufficient unless the father objects; in cases of rape or incest, the father would have no right of veto.
9. The recipients, researchers, and health care participants should be informed that the source of the tissue was an induced abortion.

COMMENT

The NIH Advisory Panel conceded that "it is morally relevant when human fetal tissue is obtained for research from induced abortions,"[3] but it achieved a consensus by asserting that the issues of induced abortion and fetal tissue transplantation could be separated. Under these conditions, the panel finally supported the use of cadaveric tissue from induced abortions as "acceptable public policy." Similar conditions appear in a growing body of ethics literature on the subject,[27–31] including a special report and proposal of the Stanford University Medical Center Committee on Ethics[32] and a policy report of the American Medical Assocation's Council on Scientific Affairs and Council on Ethical and Judicial Affairs.[33]

Assistant Secretary Windom's 10 questions placed a primary focus on abortion, perhaps reflecting the political attention this issue commands.[34] A more central issue is the transplanted tissue's clinical benefit. Because results of transplants into human subjects are mixed, and because restraints have been advised in some instances,[19] the ethical principles of benefit and proper use of society's limited resources would support recent proposals that fetal tissue transplantation be confined to a few centers of excellence where carefully controlled research could be pursued until safety and efficacy are demonstrated. Furthermore, scientific work, including animal studies, should continue to determine cell survival, growth curves, graft-host immunology,[34] and in general acquire and evaluate an appropriate fund of basic knowledge.[35]

International agreement and cooperation with these proposals should be sought. At the "centers of excellence" in the United States, the input of Institutional Review Boards and Ethics Committees would be essential. In addition to limited fetal tissue transplant research, the pursuit of alternatives such as allografts and the development of cell and tissue cultures should continue. Research results as well as adherence to and the feasibility of the NIH Panel's *separating* conditions should be reported and monitored, with the recognition that such conditions may need to be reformed in the light of new data.

Encourage abortion?

Will the use of tissue from induced abortions provide an added incentive for women contemplating abortion? No data are available to provide an answer. Most of the NIH panel regarded this as highly unlikely.[3] In a "Statement of Dissent," panel members James Bopp and James Burtchaell asserted that, with successful fetal transplantation, the incidence of abortion can be expected to increase, especially among women who are ambivalent about abortion.[3]

If a link is established between the therapeutic use of fetal tissue and maternal decisions to abort, the wider ethical support for fetal tissue transplantation (represented by the majority consensus opinion of the NIH panel) would be narrowed. Furthermore, the persuasive analogy between organ transplantation and fetal tissue transplant, founded on the understanding that the cause of death is irrelevant as long as the potential medical use of the available organs or tissue did not contribute to the death,[32] would be significantly weakened if not destroyed.

Part of the NIH panel's supporting rationale for fetal tissue transplantation is "the fact that abortion is legal"[3] and "the fact that these abortions would occur regardless of their use in research."[3] The US Supreme Court's decision on *Webster v Reproductive Health Services* (July 3, 1989) and the resulting possibility of reversing or modifying *Roe v Wade* on the state level could change these facts. Nevertheless, fetal tissue transplantation will remain an international issue affected by abortion policy, fetal tissue availability, and fetal tissue research decisions in other countries. In Great Britain, the transplantation of fetal tissue from induced abortions has been permitted since July 1989, based on the perceived separation of abortion and the use of fetal tissue.[36]

Consent issues

A final issue is "informed consent" for use of aborted tissue. By whose authority is the tissue used? What is the mother's role in deciding on the disposition of the aborted fetus? By consenting to an abortion, does she forfeit the caretaking rights normally assumed by parents?

Most of the NIH panel concluded that maternal consent "is sufficient for the use of the tissue" and "is the most appropriate mode of transfer of fetal tissues," based on the congruency of our society's traditions, laws, policies, and practices, including the Uniform Anatomical Gift Act and concurrent federal research regulations.[3]

The "Statement of Dissent" by Bopp and Burtchaell rejected this position and maintained maternal forfeiture of the proxy role. An alternative to these two positions would be routine screening and use of all aborted fetuses unless the mother objected.

A fourth option, which would preserve some of the intent of informed consent and significantly reduce any conflict of interest for parental decisions about dona-

tion, would accord authority for donation to independent third parties (eg, medical examiners, coroners), while allowing either parent the right of veto.[37] Those responsible for making decisions about donation would have no connection or vested interest in the transplant program or medical facility involved in the research. Ethics Committees and Institutional Review Boards at hospitals where transplants are performed would not meet such requirements.

The NIH Ad Hoc Advisory Panel could not address all the issues associated with the transplantation of fetal tissue from induced abortions. The panel did clarify the ethical issues and developed ethically supportable safeguards for fetal tissue transplantation, but discussion needs to continue. In the United States, the question remains whether federally funded clinical research using cadaveric fetal tissue transplantation will be reinstated, and, if so, whether it will be resumed within the cautious constraints and conditions of the NIH panel.

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