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There is great excitement in the medical community about the propsects of fetal tissue transplantation. Abraham Lieberman of the New York University Medical Center put it this way: "Fetal tissue transplantation is to medicine as superconductivity is to physics".[1] Yet Arthur Caplan, Director of the Center for Biomedical Ethics at the University of Minnesota, has called the ethical dimensions of this issue "the ticking time bomb of medical ethics".[2]

The use of fetal tissue is actually part of a long-established tradition of using fetal cells in research. For example, the 1954 Nobel Prize for Medicine was awarded for a polio vaccine that was developed from fetal kidney cells. In addition, fetal cells were used in the production of a widely used vaccine for measles.[3] However in the early use of fetal cells, the source was only spontaneous abortions, and perhaps ectopic pregnancies, not elective, non-therapeutic abortions.

Fetal tissue is good source of transplant material due to its potential for growth, its ability to differentiate, its ability to integrate into the recipient, and is less subject to rejection in the transplant process.[4] In addition, it is currently in high supply.

There are many different potential uses of fetal tissue for transplants, but the focus to date has been on the treatment of Parkinson's disease and diabetes. Using Parkinson's disease as an example, where the technology is most advanced, here is how a transplant of fetal tissue alleviates some of the symptoms.[5] The disease affects the part of the brain known as the substantia nigra, when the neurons there begin to disintegrate, thus the production of dopamine is impaired. As a result, the patient experiences motor difficulty, rigidity, tremor, and even dementia, eventually rendering him unable to carry on any normal functions. As is the case with all neurological diseases, the tissue that is destroyed is incapable of regeneration. The neurologic tissue from the human fetus is transplanted into the brain of the recipient

and within weeks the tissue begins to secrete dopamine. This represents an alternative to the customary drug therapy that contains dopamine precursors or drugs which stimulate greater dopamine release by the existing healthy neurons in the brain.[6]

At present, there is adequate available tissue from elective abortions to meet the need of sufferers of Parkinson's disease.[7] However, should the technology develop as anticipated and be effective in treating a wide variety of degenerative diseases, the amount of tissue would fall far short of the demand.[8]

It would be ethically less troubling if the tissue from spontaneous abortions was adquate for use in the transplants. However, there are three primary problems with this tissue.[9] First, in spontaneous abortion, there is a significant incidence of chromosomal abnormality, which is the primary cause of most miscarriages. Second, depending on the time lapse between the death of the fetus and the retrieval of the tissue, hypoxia may render the tissue non-functional. Third, there is a higher incidence of infection in spontaneously aborted fetuses that could be passed on to the recipient. However, it should be noted that the risk of infection still exists with tissue from elective abortions. The existence of microorganisms in the tissue from spontaneous abortions has led some to suggest that it should not be used at all in the transplants.[10]

State of the Science

The best way to characterize the state of fetal tissue transplant technology is "experimental".[11] This may make this area one of the few in bioethics in which the ethical discussion is ahead of the medical technology. It is encouraging to see the amount of ethical reflection that is taking place while the science is still being developed.

One method of treatment of Parkinson's disease that does not involve fetal tissue was attempted by researchers in both Sweden and Mexico to transplant cells that also secrete dopamine[12] from the patient's own adrenal gland. Initial success in these countries was not confirmed in the United States,[13] which has raised skepticism about the accuracy of these early reports, particularly the experiments in Mexico. Animal experiments with fetal tissue have, however, met with considerable success. Again in Sweden[14] and in the United States,[15] transplants of fetal tissue into rats have shown that the tissue, when transplanted, does find its way to the section of the brain that matches its function physiologically. These advances were expanded when a 1986 experiment showed success in using fetal tissue in treating Parkinson's disease that had been induced in monkeys.[16] To date there have been only a handful of transplants performed on human beings. At the November, 1988 annual meeting of the Society for Neuroscience, most of the researchers conceded that the recipients have received little clinical benefit and they called for more research on animals.[17] Anders Bjorklund of the University of Lund in Sweden, who performed transplants

on two Parkinson's patients in 1987, reported at these meetings that "the results have not been impressive" and "the implantations have not had any clinical significance".[18] Though most researchers are optimistic about its eventual success, there are sharp differences on the timetable, and some call for more extensive animal research prior to moving forward on human beings.[19]

Should the technology be perfected, it shows promise for application to a number of other degenerative diseases such as Alzheimer's disease, Huntington's Chorea, spinal cord or other neural injuries. In addition, the use of fetal liver cells shows promise for treating bone marrow diseases and blood disorders, and fetal pancreatic cells have been shown to help treat diabetes.[20]

State of the Law

In the aftermath of Roe v. Wade, the federal government established regulations to limit the scope of experimentation on the fetus. In 1974, the Department of Health, Education and Welfare created the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. The regulations recommended by this commission were adopted the following year. Experiments on the live fetus are permitted only if the research is therapeutic and there is minimal risk to the fetus. In cases where critical information cannot be obtained from any other source, non-therapeutic research is permitted as long as the risk to the fetus is minimal. Ironically, these regulations protect the fetus, as a subject of experimentation, in a way almost identical to the way adults are protected, yet the Roe decision denies the fetus the right to life throughout the entire pregnancy. Most state laws restrict experiments on live fetuses (as do the HEW regulations), and the majority of states follow the federal regulations, with penalties for violation ranging from misdemeanor to homicide.[21]

The regulations further state that any experiments with dead fetuses be done in accordance with state law. Most states permit the use of tissue from dead fetuses under the provisions of the Uniform Anatomical Gift Act, which allows next of kin to donate the tissue, similar to organ donation from cadavers.[22] However, eight states (Arizona, Arkansas, Illinois, Indiana, Louisiana, New Mexico, Ohio and Oklahoma) prohibit the use of fetal tissue from dead fetuses,[23] and 17 states prohibit the sale of the tissue and fetal organs.[24] The law in Louisiana has been successfully challenged on constitutional grounds, that it unduly restricts a woman's right to an abortion. However, it should be noted that the law was struck down due to its ambiguity, not any problem in principle.

The current discussion on this issue began in October, 1987 with a National Institutes of Health request for federal funding to transplant fetal neural tissue into the brain of a Parkinson's patient. In March, 1988, the NIH convened a 21-member panel to study the issue. During the panel's deliberations, in May, the administration announced a moratorium, still in

effect, on federal funding for such research. In December, the panel published its findings and made the following recommendations as parameters for research it considered ethically acceptable.[25]

1. The decision to abort must be made prior to the discussion of the use of the tissue.
2. Anonymity is to be maintained between donor and recipient.
3. Timing and method of abortion is not to be influenced by the possibility of tissue use.
4. Consent of the pregnant woman is necessary and sufficient unless the husband objects.
5. No financial or other incentives are to be given to the woman who aborts and thus "donates" the tissue.

Discussion of the Major Positions

1. The Use of Fetal Tissue from Induced Abortions Is Ethically Acceptable.

This position justifies the use of fetal tissue with varying degrees of restrictions. The principal difference between those who propose various limits is that some allow for the mother to designate the recipient of the fetal tissue, while others prohibit recipient designation.

A. Recipient Designation is Ethically Acceptable. This position justifies not only the use of the tissue from induced abortion, but also recipient specification of the donated tissue. In addition, conception solely for tissue donation and even recruiting a surrogate to conceive for the same purpose is considered ethically acceptable.[26]

This position begins with the widely held assumption that it is ethically acceptable for a woman to have an abortion if it is necessary to save her life. Though cases like these are rare exceptions in reality, most would justify the abortion morally in a case like that. The argument proceeds by using a hypothetical situation in which a pregnant woman learns that someone close to her has a neurological disease like Parkinson's which may be helped by fetal tissue. Is it ethically permissible for her to abort for the use of the fetal tissue? If she may abort to save her own life, if it is in danger, then why may she not abort to save the life of another? Or if she may abort to relieve the burdens on herself, may she not also abort to relieve the burdens, perhaps more serious ones, on another? This position holds that she may in both cases.

This goes a step further when insisting that there is no moral difference between a woman already pregnant aborting to use the tissue, and conceiving in order to abort for the same reason. John A. Robertson of the University of Texas Law School, states, "As long as abortion of an existing pregnancy for transplant purposes is ethically accepted, conceiving in order to abort and procure tissue for transplant should also be ethically acceptable when necessary to alleviate great suffering in others."[27]

Proponents of this position acknowledge that some may resist the idea

of conception solely for donation purposes due to the social symbolic significance of honoring life. Yet proponents argue that this symbolic significance is overruled in most cases by the beneficent effects of the tissue transplants on the recipient.

The position is extended further in the suggestion that recruitment of a surrogate to conceive and donate the fetal tissue is also justified. If the need for tissue histo-compatibility arises, it would be appropriate for someone who is a match to conceive in order to be a donor. Robertson again states, "If a relative may provide tissue, why not a stranger who chooses to do so altruistically?[28] When the objection is raised that the woman could become an organ farm, proponents suggest that the same objection could be made against anyone who donates organs. In addition, the risk of the woman being misperceived as a tissue farm should not hinder one from realizing the positive benefits that the transplants bring.

To guard against possible abuses in this system, some limits are recommended, namely that the request to donate the tissue be separated from the consent to abortion, the former being allowed only after the latter has occurred. In addition, the person who requests consent for the tissue may not be the one who actually performs the transplant. This is a condition attached to all organ donations under the Uniform Anatomical Gift Act. These are suggested in order to prevent coercion of the woman who is undergoing the abortion to donate the fetal tissue.

Further limits distinguish between selling the tissue, clearly illegal under the National Organ Transplant Act of 1984,[29] and recovering the costs of retrieval and processing of the tissue. This extends to actually paying the cost of the abortion if conception is undertaken solely for the purpose of obtaining the tissue. This is similar to paying for the operation that results in a kidney, or a section of liver being made available for transplantation.

Many People Uncomfortable

Though the logic of this position seems compelling, many people are uncomfortable with such an extreme. The idea of conceiving life solely to terminate it and use the remains strikes most people as morally repugnant due to the way the fetus is overtly used as a means and not as an end. For example, a Southern California family recently acknowledged publicly that the mother had conceived solely to provide a bone marrow match for her teenage daughter suffering from leukemia.[30] This is not a case of conceiving to terminate and donate the tissue, since the family admitted that they would not have terminated the pregnancy had they discovered that the fetus was not histo-compatible. But there were significant ethical concerns raised, even though there was no intent at any point to terminate the pregnancy. The child would grow up to enjoy a normal life irrespective of donor compatibility. The strong reaction in this case where the pregnancy will continue helps one understand the moral discomfort many feel when considering the termination of a pregnancy solely for the purpose of

donating tissue. Even if one grants that the fetus may not have full personhood from the point of conception, it does have some interests and is entitled to some protection under the law. The fetus is not morally neutral in the same way an organ or a piece of tissue is. It is a potential person and it not to be treated merely as a piece of tissue that is exclusively the property of the woman. To legitimate the use of fetal tissue to this degree is to do more than symbolically devalue life. It rather makes a powerful statement that life in the womb can be used without any consideration for its end of becoming a living human being.

Proponents contend that since it is legitimate to abort to save the life of the mother, then it is also justified to abort to save the life of another through the use of the tissue.[31] This assumes that fetal tissue transplantation can actually cure various diseases. Yet the technology is still experimental and is likely to be for some time. At this time, the best that the technology can do is to reverse some of the symptoms. In the long run it is simply not known if the transplants can cure disease, or simply alleviate or reverse some of the symptoms.

Let us assume that at some point the technology does make it possible to save another's life. There is another problem with this analogy. There are actually very few abortions performed in order to save the life of the mother. They are sought for birth control purposes, to terminate an unwanted pregnancy. In the rare abortions that are performed to save the life of the mother, the fetus itself is the threat to the life of the mother, or at least, its presence in the uterus adds a complication to the mother's condition that would not otherwise be there. This is clearly not the case with abortion to donate tissue to save the life of another. This other person, for whom the pregnancy is being terminated, is no threat to the life of the mother, and thus the reason for the abortion is entirely different. The closer equivalent to this is not induced abortion, but ectopic pregnancy.

In addition, the move to the scenario of recruiting a surrogate to conceive and donate the tissue mistakenly compares fetal tissue transplants to adult organ donations. Robertson states, "the physical effects of pregnancy and abortion to produce fetal tissue are roughly comparable to the effects of kidney or bone marrow donation . . . at this point concerns about fetal status become less important and the focus shifts toward the welfare of the donor."[32] In the first place, there is confusion about who the donor actually is, since this is not a case parallel to surrogate motherhood. The donor is actually the fetus, not the woman who "rents her womb" for the purpose of securing the tissue. Secondly, this position would indeed turn women into tissue farms. Robertson attempts to counter this objection by insisting that this same charge can be made against any living donor of any tissue or organ.[33] That is, any donor who chooses to donate an organ or tissue also becomes a tissue farm, a notion that is rejected by those who work in adult organ transplantation. However this is hardly an exact parallel, since adult organ donors are not conceived solely for the purpose of donating their organs. Thirdly, a fetus in utero about to become a tissue donor and an

adult cadaver awaiting organ retrieval are very different, since the decision to abort the fetus was made while the fetus was still alive and developing, not when it was brain dead. Even if the decision to donate one's organs was made while still alive, the decision to transplant the organ/tissue does not result in the donor's death. This is clearly not the case in the scenario where the fetus is conceived and aborted in order to donate the tissue. We would suggest that an exact parallel between conceiving in order to donate the tissue and adult organ transplantation would surely disqualify a proxy from any role in the disposition of the cadaver.

Ethical Concerns

The ethical concerns in this position revolve around consent[34] and commercialization of the tissue. Thus the consent to abortion should be separated from the consent to donate the tissue. This concern is shared by most who favor fetal tissue transplants from induced abortions. But since this position attempts to justify recipient designation, the separation of the two consents would seem to be very difficult to maintain. Given the publicity that has already and will continue to surround the medical technology in this area, separating the two consents is both naive and simplistic. As long as a woman can abort in order to donate tissue to a person of her designation, the scenario in which a woman is coerced into conception, abortion and tissue donation is not hard to imagine. Though the supply of tissue is currently adequate to service the available technology, it will be overwhelmed by the demand should the technology live up to its promise, thus contributing to the possibility of coerced consent. This likelihood of demand outstripping supply is increased by the improved methods of contraception and the possibility of RU 486 being introduced into this country. Though the French firm that produces the "abortion pill" currently has no plans to market the drug here, it is unlikely that the pressure to make it available can be resisted in the long run. The California attorney general recently proposed testing of the drug within the state.[35] Should it be marketed, one can easily see how the availability of fetal tissue from family planning abortions would be significantly reduced. In fact, one can imagine the time when the majority of fetal tissue available for transplants would come from conceptions and abortions being done explicitly for that purpose.

There is little doubt about the willingness of women to conceive in order to provide tissue for an ailing relative. Though none of the offers have yet been accepted, people have already come forward publicly to state their willingness to do so.[36] Nor can there be doubt about the availability of women who would donate tissue for a fee.[37] Proponents suggest that there should be no fee paid, but that retrieval agencies are entitled to recover their costs. It would not be difficult to hide the fee paid to the woman in the retrieval of costs, and any prohibition of this would be virtually unenforceable. For instance, one can easily imagine discounts of some kind

being offered for the abortion procedure. In addition, one of those retrieval costs would be paying for the abortion in cases where the abortion is performed strictly for the tissue.[38] It would seem that if this was adopted, donating the tissue would be an easy way to finance one's abortion, and the motives behind the decision to abort would become very difficult to sort out. This would further complicate the efforts to separate the consent to an abortion and the consent to the tissue donation, and would make the attempt to avoid commercialization of the tissue difficult.

B. Recipient Designation is Ethically Unacceptable.

This is essentially the position of the Fetal Tissue Transplantation Panel that was commissioned by the NIH. This position has most recently been adopted, with some modifications, by the Ethics Committee of Stanford Medical School.[39] Proponents acknowledge that tissue from induced abortions may be used ethically, but places significant restrictions on recipient designation and benefits to the pregnant woman. The principal purpose for these restrictions is to avoid the marketing of fetal tissue and the conception of fetus for the purpose if terminating it in order to use the tissue for another's benefit. Both of these are considered violations of the dignity of life by treating the fetus as a medical product and the uterus as a factory.[40]

The position itself is spelled out by the response of the NIH Panel to ten specific questions put to it by the Assistant Secretary of Health.[41] These questions are as follows:

1. Is an induced abortion of moral relevance to the decision to use human fetal tissue for research? Would the answer to this question provide any insight on whether and how this research should proceed?

The panel concluded that induced abortion as the source of the tissue is morally relevant, but is subordinate to the benefits that arise out of the use of the tissue. However, to keep the two issues separate, the panel recommended that the decisions to end a pregnancy and donate the tissue be kept separate; compensation be limited to expenses incurred on obtaining the tissue; everyone involved in the transplantation procedure be informed of the source of the tissue; a respect parallel to that given non-fetal cadavers be maintained. It was emphasized that abortion is legal, but that questions of law and morality are not the same. There seemed to be some ambivalence among the panel on this question, since it states that its support for the use of tissue should not be taken as a similar support for abortion. The majority accepted the legitimacy of the transplants based on the legality, not the morality of abortion.

2. Does the use of fetal tissue in research encourage women to have an abortion which they might not otherwise undertake? If so, are there ways to minimize such encouragement?

The panel cited no evidence that the use of or need for fetal tissue would encourage a higher incidence of abortion, while admiting that there has been minimal public exposure to the possibilities for which this tissue can

serve. The consensus of the panel was that this was unlikely to be a further encouragement of abortion, given the complex and varied reasons that cause a woman to have an abortion. However, it acknowledged that minimizing encouragement to abortions that would not normally occur was good, and recommended that any decision to abort must precede any discussion of and request for donation of fetal tissue. In addition, there should not be any recipient-designation on the part of the pregnant woman.

3. As a legal matter, does the very process of obtaining informed consent from the pregnant woman constitute a prohibited "inducement" to terminate the pregnancy for the purposes of the research, thus precluding research of this sort under HHS regulations?

There was clear consensus that a woman should not be coerced into furnishing fetal tissue for transplantation, and that the process of informed consent is not inherently coercive. But they did acknowledge the difficulty of isolating the consent to abortion from the growing public knowledge of fetal tissue transplants. They recommended that anonymity be maintained between donor and recipient and that even if the woman asks directly about the use of the tissue in the process of consenting to the abortion, no guarantees be given about the use of the tissue. In addition, the timing and method of abortion should not be biased by the retrieval of the tissue.

4. Is maternal consent a sufficient condition for the use of the tissue, or should additional consent be obtained? If so, what should be the substance and who should be the source(s) of the consent, and what procedures should be implemented to obtain it?

There was consensus that no tissue should be used without the consent of the pregnant woman, and that consent should be obtained in accordance with the UAGA. Unless the father objects, her consent is sufficient.

The panel emphasized that the woman's role in abortion does not disqualify her from giving consent as the next of kin for her fetal cadaver. There were three dissenters on this question, and this becomes a significant issue in the Bopp/Burtchaell dissent referred to earlier.[42]

5. Should there be and could there be a prohibition on the donation of fetal tissue between family members, or friends and acquaintances? Would a prohibition on donation between family members jeopardize the likelihood of clinical success?

The panel held unanimously that there should be no abortions for the purpose or with the result that persons designated by the woman would receive the fetal tissue. In most cases, the person designated would be a family member or close relative. The panel strongly opposed encouraging abortions for this purpose and this prohibition would have no impact on the clinical success of the transplants. Interestingly, the panel did admit that if medical technology developed to the point where diseases could be treated with fetal tissue which required a relationship between the recipient and the

fetus for clinical success, that may be a sufficient reason to modify the prohibition. They encouraged the NIH to review the circumstances at regular occurrences.

6. If transplantation using fetal tissue from induced abortions becomes more common, what impact is likely to occur on activities and procedures employed by abortion clinics? In particular, is the optimal or safest way to perform an abortion likely to be in conflict with the preservation of the fetal tissue? Is there any way to ensure that induced abortions are not intentionally delayed in order to have a second trimester fetus for research and transplantation?

Here again, the panel affirmed its separation of consent for abortion and for tissue retrieval, and that no fees be paid to the donating woman. It acknowledged the probablility that demand for the tissue could outstrip supply due to more effective contraception, pharmacological abortion (RU 486) and greater develpment of the technology. The pressure which that places on abortion clinics would be clear if they begin to profit from selling the tissue. Enforcement of the regulations prohibiting the sale of the tissue, and monitoring the books of the clinics to ensure that expenses incurred in the retrieval of the tissue don't mask a profit, were emphasized by the panel as being critical.

7. What actual steps are involved in procuring the tissue from the source to the researcher? Are there any payments involved? What types of payments in this situation, if any, would fall inside or outside the scope of the Hyde Amendment?

Normally, the abortion, retrieval and research take place within the same institution, with exceptions being that medical researchers have obtained tissue from independent abortion clinics. However, more recently there have arisen retrieval agencies which provide the tissue for research. Most of these are non-profit organizations which pay the clinic a fee that covers the cost of retrieving the tissue. They then pass on the tissue, and the retrieval costs, to the research institutions.

The panel emphasized that there should be no payments for the tissue other than expenses incurred. They cited no available evidence that women who abort are paid anything for their donation of tissue, and they stressed that more specifics are needed to define what constitutes legitimate expenses.

Questions eight and nine are not particularly relevant for outlining the NIH panel's basic position. They deal with the state of the law and how that affects NIH funding (question eight) and whether adequate animal experiments have been performed to justify moving forward in human beings (question nine). To the latter, the panel answered in the affirmative as it relates to Parkinson's disease and diabetes. In diseases such as Alzheimer's disease, Huntington's Chorea, and spinal cord injuries, further animal studies were urged.

10. What is the likelihood that transplantation using fetal cell cultures will be successful? Will this obviate the need for fresh fetal tissue? In what time frame might this occur?

Established cell lines maintained in cultures are an alternative which could reduce the need for fetal tissue. Though the panel's experts were encouraging about the prospects, they admitted that it is probably 10 years away from being a viable alternative.

Some of the same criticisms of the previous position which attempted to justify recipient designation apply to this attempt to draw some boundaries around the practice. For instance, even though recipient designation is prohibited here, keeping the two necessary consents separate is still more difficult than proponents admit. For this to be done effectively would involve monitoring of the counseling and consent processes in a way which current resources do not permit.

A further problem is that keeping financial inducements from being a factor in the process is unenforceable. Again, this would take a degree of monitoring which cannot be provided. Given the already profitable abortion industry, the prospects of dramatically increased demand (and possibly decreased supply of fetal tissue), and the desperation of the recipients, in many cases with terrible diseases, the market forces at work are underestimated by the proponents. There are numerous "creative" ways to financially induce the woman undergoing abortion to donate the tissue that are on a practical scale, impossible to detect and police. Even with the restrictions on payments to aborting women, it seems inevitable that commercialization of the industry will occur and that we will be trafficking in human tissue. Finally, the parallel to human organ transplants that is used as justification for the process is flawed. The comparison is made to organ donation from one who has been tragically killed, perhaps as a result of a drunk driver. Just as we routinely separate out involvement with the process of death from the retrieval of organs, the proponents suggest that the same is possible here. However, the tissue obtained from induced abortion is not at all like the organs donated by someone killed in a tragedy. Here there is an intentionality in making the tissue available that does not exist in normal organ donation. There is no parallel to the unintended death (at least unintended by the one who makes the tissue available) which produces an adult cadaver, since the one who consents to the donation is the direct cause of the donor's death. This seriously undermines the legitimating parallel and ethically compromises the fetal tissue donation.

Proponents' Likely Response

The proponents of this position would likely respond to some of these criticisms by asserting both the legality of abortion and the availability of the tissue. The tissue is there, they would argue, and will likely continue to be available for the foreseeable future. Why not put it to good use? Some might suggest that there is even a responsibility to use the tissue since it

can help suffering people. Thus they would insist on separating the use of the tissue from its retrieval.

In response, how the tissue is obtained does make a moral difference. The means as well as the ends have moral significance. Given the necessity of an institutional partnership between the transplant facilities and the abortion clinics for the best medical results, separating the use of the tissue from its retrieval is not as clear cut as the proponents would like to believe. Here there does seem to be a parallel between these transplants and the Nazi doctors' experiments on hypothermia. Many would hold that it was immoral for them to use the information gained from experiments on Jews obtained by force. Even though the physicians were not the ones who actually brought the subjects in for the experiments, they had proximity to those who did, and were pulled into the field of moral responsibility. The current debate on whether scientists today can use that research is different from the question of whether or not the Nazi scientists were morally free to use that information. Today researchers desiring to use that information have no proximity to how that information was obtained, and many would argue that it is morally justified today to use that information. But the parallel with fetal tissue transplants is not the current debate on the present use of the Nazi information. Rather, it is the Nazi scientists who had proximity to the way in which the subjects were procured that forms the more fitting parallel. One can certainly oppose the termination of a pregnancy, irrespective of one's convictions about the freedom of choice, and still support the use of the tissue. But one can do this consistently only if one is no longer in the position to affect how it is obtained, that is, no longer has proximity to the retrieval of the tissue. Even though one is dealing with two dead cadavers in both adult organ transplantation and fetal tissue transplants, the causative element in the latter ethically compromises the use of the tissue.[43]

2. Fetal Tissue Transplants from Induced Abortions Are Ethically Unacceptable

A second position prohibits the use of all fetal tissue obtained from induced abortions. Due to the complicity with abortion, which when done for family planning purposes cannot in any sense be considered a good (the good would be the freedom to exercise reproductive choice), Any use of fetal tissue obtained in this way is thus morally tainted. In addition, this position recognizes the difficulty with which lines are drawn that restrict the use of the tissue, and argues that there is nothing to prevent one from ending up with the commercialization of organs and human tissue.[44]

The first argument comes from the inability to establish rightful consent for the process. To date, fetal tissue transplants are treated as any other cadaveric transplants under the UAGA, thus requiring consent of next of kin. The UAGA and the NIH panel both fail to recognize the distinction between normal organ transplants and the use of fetal tissue. In the case of

fetal tissue, the mother is presumed to be the one who gives consent to the use of the tissue for the transplant (or for some other form of experimentation). According to the normal understanding of proxy consent, her role assumes that she is acting in the best interest of the child. Yet she is also the one who has authorized the terminating of the pregnancy in the abortion. Ethicist Paul Ramsey concludes that it is morally outrageous and a charade to give the woman who aborts any right to proxy consent for the donation of or experimentation on the aborted fetus's body parts.[45] Bopp and Burtchaell conclude in their dissent from the NIH panel report that, "We can think of no sound precedent for putting a living human into the power of such an estranged person, not for his or her own welfare, but for the 'interests' of the one in power."[46]

Ironically, some who support fetal tissue transplants have argued that the aborted fetus would have "desired" to help those suffering from various diseases which the tissue would benefit. This idea of fetal desire was first put forth in the attempt to justify research on living, non-viable fetuses, as a corollary to the concept of consent based on proximity to the fetus. Case Western University professor Mary Mahowald and her team use this concept to help justify not only experiments but transplants, and appeal to Richard McCormick's concept that children (however, he was arguing for the obligation of children, not fetuses as research subjects, not transplant donors), as members of the moral community, have a responsibility to be subjects in research which will benefit that community. When they make this appeal, they are caught between affirming that the fetus has a responsibility as part of the moral community, yet has been excluded from the same community since it has no recognized right to life.[47]

One may object to the need for consent in the first place, if the fetus is not recognized as a person. Yet this fails to recognize why fetal tissue is so valuable. It is precisely because it *is* human tissue. Biologically, the fetus is much more than an organ or a piece of tissue. It is a developing human being with potential for full personhood and thus the potential for full membership in the moral community from the time of conception. It is not necessary here to argue that the fetus has full personhood from the time of conception, only that its potential to assume personhood makes it qualitatively different from an organ or other piece of tissue. It should be noted that we are not conceding that the fetus is not a fully human person with the right to life, only insisting that one can oppose fetal tissue transplants from induced abortions without insisting on the full personhood of the fetus. We hold that the fetus does indeed have the right to life as a fully human person.

Related to the concept of consent is the status of fetal tissue transplants as gifts and the fetus as donor under the UAGA. Since the fetus presumably has no value, it is difficult to see how the tissue can be legitimately regarded as a gift and the fetus as a donor. Few seem prepared to reject the framework of the UAGA to govern the use of fetal tissue. Yet the inadequacy of the language to describe the "gift" of a fetus reflects a strange

ambivalence about the nature of the fetus. A more significant conceptual problem is encountered when one considers that the fetus is simultaneously both a donation and a donor. It is difficult to see how the fetus can be called a donor under the UAGA in parallel to an adult organ donor, if the features that give the fetus *potential* personhood are discounted. When the donation of fetal tissue has the connotation of a gift, only the non-induced abortion can actually stand on a moral basis, since these fetuses were only unable, and not unwelcome, to join the human community.[48]

Greater Incentive to Abortion

Even some of the advocates of the tissue transplants acknowledge that it may create a greater incentive to abortion, or may lead women to decide for abortion who wouldn't otherwise.[49] This argument against the transplants distinguishes between abortion and the freedom to choose the abortion. Few, if any, would call the act of terminating a pregnancy a good. What is considered the good is the freedom to choose an abortion, not the act itself. Many pro-choice advocates are increasingly uncomfortable with the number of abortions performed in this country. Many see the increased effectiveness of contraception as a good for precisely this reason; that it prevents the trauma and tragedy of abortion. Even support for RU 486 is premised on this same notion. Thus, anything that would increase the incidence of abortion cannot be a good. Though our society recognizes the legality of abortion, we have never seen fit to actively encourage it.

The use of fetal tissue from induced abortion legitimizes abortion by "redeeming" it. As the medical technology necessary for effective transplantation advances, and the transplants themselves become more common, it is difficult to see how this will not desensitize society to what is involved in elective abortion, making it more morally neutral.

In addition, the use of fetal tissue for transplants forms a symbiotic relationship with the abortion industry.[50] Given the future prospects of the science and the overwhelming numbers of people with diseases that fetal tissue could potentially help, the financial incentives for securing the tissue are powerful. It is hard to see how an already profitable industry could resist the urge to "cash in" on this potentially very lucrative relationship with the practitioners of fetal tissue transplants. This sets up the possibilities for abuse about which even the advocates are wary. Already there have been people not simply willing but eager to conceive just to donate the tissue.[51] Fetal tissue is currently being used to make cosmetics in Sweden and fetal kidneys from Brazil and India are being sold in West Germany to physicians for transplant.[52] It is true that most advocates recommend some laws or voluntary guidelines to keep such abuses from taking place. These may be adequate for the short run, but there are no guarantees that these kinds of abuses can be prevented in the long run as the process becomes more acceptable. Thus this approach is not "burning down the house to roast the pig", but rather, stopping the descent down the slippery slope at

the top. It is naive to think that the long run pressure can be resisted, given the powerful incentives to donate the tissue that the advances in medical science promise to provide.

Finally, there is a sense of complicity with abortions already performed. Here the advocates of this position use the parallel of the Nazi scientists. It is important to notice that the parallel does not preclude the later use of information by generations that had nothing to do with the Nazi horrors. Rather, the comparison is to the Nazi scientists themselves, who, by their proximity to the abuse of human rights are "pulled into the gravity field of responsibility for the violent act which supplies them with vanquished human bodies for research."[53] It is important to realize that what is being considered is an institutional partnership with the abortion industry, for which some are requesting federal funding. The better parallel might be a banker who morally evaluates the drug trade to be a tragedy, but who agrees to accept drug money at his bank in order to finance low income housing for the community. There would be little doubt that the banker is involved in complicity with the drug trade, and perhaps giving it legitimacy, even though he is not involved with the actual sale of narcotics. LeRoy Walters, the chairman of the Ethical and Legal Issues of the NIH panel said in 1974, when only experimentation with the fetus was being deliberated:

> Ought one to make experimental use of the products of an abortion system, when one would object on ethical grounds to many or most of the abortions performed within a system? If a particular hospital became the beneficiary of an organized homicide system which provided a fresh supply of cadavers, one would be justified in raising questions about the moral appropriateness of the hospital's continuing cooperation with the suppliers.[54]

Summary of Position

We are opposed to fetal tissue transplants in which the source of the tissue is induced abortion. We do support as an alternative the use of cadaver tissue from spontaneous abortions or ectopic pregnancies.[55]

The following constitute a summary of the rationale for this position:

1) *Fetal transplantation is inconsistent with the UAGA framework in which it is supposed to be governed.*

Throughout all the discussion of fetal transplants, the framework of the UAGA is either assumed or explicitly invoked. Part and parcel of this parallel is the one between the dead fetus and the adult cadaver as donor. With the rise of fetal tissue transplant technology, the UAGA was expanded to include the fetus under its rubric. The use of the tissue from induced abortion is inconsistent with this framework, since:

A) *Valid consent is impossible.* The mother cannot be considered a legimate proxy, having authorized the termination of the pregnancy. Elimination of consent, however, would further objectify the fetus and be inconsistent with the fact that biologically, the developing fetus does not represent the woman's tissue. It would be well to avoid the notion of the fetus as the source of biological "spare parts", a notion reminiscent of Huxley's *Brave New World.*[56]

B) *There is an equation of the donor and the donation of tissue.* This is not a parallel to surrogate motherhood where the mother is viewed as the donor and the tissue as the donation. Mahowald and associates equate the "moral problems thus raised (in fetal tissue transplants) to those that may occur in surrogate motherhood." They earlier state that, "With fetal tissue transplantation (as with transplantation in general), a bad effect (loss of an organ or tissue) is suffered for the sake of the recipient, and there is no similarly bad effect in surrogacy." Their suggestion that this parallel helps provide some of the guidelines for fetal tissue transplantation ignores the obvious discontinuity, that the death of the fetus results from the transplants. This is hardly only a bad effect, it is the destruction of the fetus.[57]

C) *The gift cannot be both priceless and worthless at the same time.* In fact, the use of the term "gift" is inappropriate when induced abortion is the means by which the gift is made available.

D) *The fetus is not an organ donor in the same way an adult cadaver is, since the proxy who gives consent is the agent of the termination of the pregnancy.* Only miscarriages and ectopic pregnancies actually fit this parallel.

Nolan summarizes the alternative of rejecting the UAGA framework for fetal tissue transplants:

> If we reject the framework of the UAGA, we seem doomed to accept arguments that implicitly or explicitly equate fetuses with things or beings that are not—among them kidneys, tumors and discarded surgical specimens. Yet biologically, the fetus is not a tissue or an organ but a body, and morally, the fetus is a developing being and potential member of the human community. Fetal remains accordingly ought to evoke emotions and protections beyond those given tumorous tissue or unwanted organs.[58]

2) Most of the restrictions proposed by proponents are unenforceable.

A) Given the increasing public awareness of the medical technology and the growing benefits that will occur, *keeping the two distinct acts of consents separate* is virtually impossible. All of the proposed guidelines treat this as one of the non-negotiable aspects of the transplants. It would not be difficult to imagine that, given separate consent forms coercion to donate the tissue would not enter in, in spite of the potential transplant benefits, the likely scarcity of available tissue as the technology develops and the vulnerability of the women in anticipating an abortion.

B) Given the potentially lucrative market for the transplants, *keeping financial inducements from entering in would be difficult and impossible to enforece.* For example, Hana Biologics, one of the firms testifying before the NIH panel, estimates that total market for using the fetal pancreatic tissue to treat diabetes amounts to approximately six billion dollars annually.[59] This has the potential to become very big business. Abortion clinics stand to reap a substantial increase in revenue simply from the small amount (on average, $25/organ, multiplied by the hundreds of thousands of abortions performed annually) that the non-profit acquisition organizations offer. The financial incentives to "recruit" fetal tissue donors would be significant. There are numerous non-cash ways which are difficult to detect and impossible to adequately police which would be especially appealing to poor and minority

women. For example, the clinic could offer a "discount" on the abortion procedure itself or provide a promise to provide future medical care for a specified time period following the donation of the tissue. With the anticipated profitability of the industry, once the technology can alleviate a larger number of diseases, there will be increasing pressures to "share the wealth" being produced by these transplants.

A recent California court decision may set a precedent that will make it more difficult to prevent women from obtaining compensation for the donation of fetal tissue. In Moore v. Regents of the University of California, an appeals court reversing a lower court decision ruled that a person does have a property interest in his own cells.[60] In treatment for leukemia, doctors at the UCLA Medical Center removed the spleen of a Mr. Moore, and discovered that they could manufacture, from that tissue, a cell line which was effective in slowing certain types of leukemia. The medical center then sought out a commercial arrangement with a pharmaceutical company to market the cell line. When asked for his consent, Moore refused and sued the University for his share of any profit resulting from the cell line. Though the court did not rule on his right to compensation, they did hold that individuals have a property interest in their own cells, and thus a right to control what becomes of their tissues. One can see how this could open the door not only to financial inducements but to a right to compensation for fetal tissue donation.

C) This potentially lucrative market will make it increasingly difficult to enforce another of the proponents' guidelines, that of *the separation of the transplant physician/researcher and the one who performs the abortion.* For the best medical results there must be an institutional, symbiotic relationship with the abortion industry, thereby making the separation of abortion and tissue procurement very difficult. This partnership will also make it more complicated to isolate the timing and method of abortion from what is necessary to procure the best possible tissue. Mahowald and associates already propose that pregnancies be prolonged and the method of abortion be modified, if necessary, in order to maximize the procurement of the tissue.[61] In addition, some acknowledge the legitimate possibility that tissue be removed from live, non-viable fetuses.

3) The use of fetal tissue transplants from induced abortios will serve to enhance abortion's image, or at least make it morally neutral. At a minimum, the possibility of donating tissue will relieve some of the guilt that many women feel when electing abortion, thus alleviating some of the ambivalence that usually accompanies it. Though our society recognizes the right to choose abortion, abortion is not itself recognized as a good. The prospect of donating tissue is not likely to dramatically increase the incidence of abortion unless recipient designation is allowed. But it would certainly contribute to the decision to abort and might push some women "over the line" in their decision. The routine retrieval of the tissue would no doubt make the death of the fetus seem less tragic. Nolan puts it this way: "Enhancing abortion's image could thus be expected to undermine efforts to make it as little needed and little used a procedure as possible."[62] Though

it is true that the use of tissue for research has not increased the incidence of abortion, the use for transplants produces concrete benefits rather than research possibilities and statistical lives, thus undermining the comparison.

Studies show that there is great ambivalence toward abortion among the women considering it. There is usually intense anxiety during the final 24 hours before the abortion is performed. Studies of pregnant women choosing abortion show that between one-third and 40 percent change their mind at least once, and around 30 percent do not finally make up their mind until just prior to the procedure.[63] Thus, it is likely that the prospect of solace over the guilt that usually accompanies abortion will enter into the complex set of factors which are involved in the decision to abort. The possibility of "redeeming abortion" throws a powerful human motivation into the already complex calculus. That will have an effect on that one-third to 40 percent who change their mind during the process. Bopp and Burtchaell in their dissent from the panel report state,

> It is willful fantasy to imagine that young pregnant women estranged from their families and their sexual partners, and torn by the knowledge that they are with child, will not be powerfully relieved at the prospect that the sad act of violence they are reluctant to accept can now have redemptive value.[64]

4) Some of the abuses that the proponents' regulations are designed to prohibit are already being seriously proposed. These are primarily those dealing with recipient designation of the tissue. Though short-term wedges can be placed along the slippery slope, given the promise of the technology, it is doubtful that long-term pressures can be resisted to allow women to conceive in order to abort and thus donate the tissue. As interest groups, many of whom testified before the NIH Panel, become more dependent on the tissue, they will likely begin to press their "rights" to the tissue, further complicating the ability of society to draw lines on the slippery slope.

5) There is a valid alternative — the combination of the use of tissue from spontaneous abortions and ectopic pregnancies for both transplant and the development of cell cultures of the most promising tissue. It is true that some of the diseases for which fetal tissue is being used require tissue from the second trimester, the cells from first trimester tissue are being developed and frozen in cultures for later use. This is already being done for diabetes and the development of neuroblastoma cells shows similar promise for treating Parkinson's disease.[65] The American Paralysis Association's statement to the NIH panel encouraged adequate funding to develop tissue cloning that will bypass the need for the fetus per se.[66]

The position put forward is essentially that of the British Medical Association in its interim guidelines.[67] The first of these guidelines is the most relevant for this section: "Tissue may be obtained only from dead foetuses resulting from therapeutic or spontaneous abortion."

Conclusion

One would wish that there were not ethical difficulties involved with fetal

tissue transplants, since they hold promise for treating various kinds of diseases. But given the inconsistency of fetal tissue transplants with the UAGA framework, the unenforceability of the restrictions, the likelihood that the transplants will increase the incidence of abortion, or at least make it more morally neutral, the serious proposals of some of the abuses that the restrictions are designed to prohibit and the combination of tissue from spontaneous abortions, ectopic pregnancies, and cell cultures as a valid alternative, we would support the continuation of the moratorium on research and transplants of fetal tissue from induced abortions. One hopes for the day when cell culture technology has advanced to the point where fetal tissue from induced abortions is no longer necessary.

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3. Statement made by Robin Chandler Duke, in testimony to the NIH Panel and contained in the *Report of the Human Fetal Transplantation Research Panel,* vol. II, p. D114.

4. A helpful summary of the scientific advantages of fetal tissue for some of these transplants is found in Auerbach, Robert and Wolfe, Harold R., *Report of the Human Fetal Tissue Transplantation Research Panel,* vol. II, pp. D28-D31.

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20. Nolan, Kathleen, "Genug is Genug: A Fetus is Not a Kidney", *Hastings Center Report* 18 (December 1988): 13.

21. Washington, Mildred, "Fetal Research: A Survey of State Law", *Congressional Research Service Report for Congress* (March 8, 1988): 1.

22. Robertson, John A., "Rights, Symbolism and Public Policy in Fetal Tissue Transplants", *Hastings Center Report* 18 (December 1988): 5.

23. *Ibid,* p. 12, note 37. The statute in Louisiana has been successfully challenged on constitutional grounds that it restricts the woman's right to an abortion guaranteed under Roe vs. Wade. However, it is unclear whether the law actually restricts the right to an abortion or the right to designate a recipient of the fetal tissue. It appears that the challenge assumed that the fetus was the right of the mother to dispose of as she wished.

24. *Ibid.*, p. 12, note 28. These states include Arkansas, Illinois, Ohio, Louisiana, Oklahoma, Florida, Massachusetts, Maine, Michigan, Minnesota, North Dakota, Nevada, Rhode Island, Tennessee, Texas, Pennsylvania, Wyoming.

25. Consultants to the Advisory Committee to the Director, National Institutes of Health, *Report of the Human Fetal Tissue Transplantation Research Panel,* (December 1988): Vol. II A 25.

26. This position appears primarily in the writing of John A. Robertson, law professor at the University of Texas Law School, in two principal articles: "Fetal Tissue Transplants", *Washington University Law Quarterly* 66 (1988): 443-498, and "Rights, Symbolism, and Public Policy in Fetal Tissue Transplants, *Hastings Center Repoort* 18 (December 1988): 5-12.

27. Robertson, "Fetal Tissue Transplants", 461.

28. Robertson, "Rights, Symbolism and Public Policy, 8.

29. Robertson, "Rights, Symbolism and Public Policy in Fetal Tissue Transplants", 10. Note that this Act was amended in 1988 to include fetal organs and tissue.

30. The intent of the family to conceive solely for the bone marrow donor is underscored by the fact that the father underwent surgery to *reverse* a vasectomy six months prior to conception of the child who will be the donor. See *Orange County Register,* August 31, 1990. The bone marrow transplant was performed in May, 1991.

31. Robertson, "Rights, Sybolism and Public Policy in Fetal Tissue Transplants", 8.

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34. *Ibid.*, He states that "the main ethical concern is to assure that her choice about tissue donation and the abortion is free and informed."

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36. Lewin, Tamar, "Medical Use of Fetal Tissue Spurs New Abortion Debate," *New York Times* August 16, 1987, 1. In contrast to this, Robertson suggests that "there is little reason now to think that women will abort to obtain tissue for transplant", "Fetal Tissue Transplants", 467.

37. "The willingness of most women to donate without a fee should make payment of abortion expenses unnecessary". Robertson, "Fetal Tissue Transplants", 10.

38. Robertson calls this a mere hypothetical possibility at present. He apparently was not aware of the public offers made in *The New York Times* article cited above.

39. Greely, Henry T., et al, "The Ethical Use of Human Fetal Tissue in Medicine", 1093-1096.

40. Greely, et al, *ibid.*, 1095.

41. *Report of the Human Fetal Tissue Transplantation Research Panel,* Vol. I, 1-18.

42. This important point will be discussed in more detail in the presentation of the third major poisition.

43. For a further development of this point, see the banker and the drug trade parallel below.

44. This position is represented by Bopp and Burtchaell in their dissent from the majority opinion of the NIH Panel. The article cited earlier in *This World* 26 (Summer 1989) is identical to their statement of dissent contained in volume II of the Report of the NIH Panel.

45. Ramsey, Paul, *The Ethics of Fetal Research* (New Haven: Yale University Press, 1975): 89.

46. Bopp and Burtchaell, *op. cit.*, 59.

47. This point is made by Kathleen Nolan, in "Genug ist Genug: A Fetus is Not a Kidney", 14. The reference to Mahowald and team is taken from "The Ethical Options in Fetal Tissue Transplantation", 9-15.

48. Nolan, Kathleen, *op. cit.*, 18.

49. "Concern that the use of fetal tissue for transplantation in such cases could become an incentive for abortion thus appears well grounded." Fine, Alan, *op. cit.*, 6.

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65. For the use of fetal pancreatic cells in the treatment of diabetes, see the *Panel Report,* vol. II, D255. For the use of neuroblastoma cells, see DiGiorgio, *op. cit.*, 12.

66. *Panel Report, ibid.*, E15.

67. Cited in the *Panel Report,* vol. II, D101. These guidelines reflect the statement of the Council of Europe, adopted in September, 1986. It should also be noted that, as of July, 1989, the British government adopted the recommendation of the Polkinghome Report that fetal tissue transplants from induced abortions be allowed. Interestingly, the Committee suggested that the fetus does have the same moral status as a human being from the fourteenth day after conception. Yet it denied that there is an iherent immorality involved in using the tissue from an induced abortion. If the fetus has such full personhood, the arguments favoring abortion and fetal tissue transplants are very difficult to maintain. See Dickson, David, "Fetal Tissue Transplants Win U.K. Approval", *Science* 245 (August 4, 1989): 464-465.
