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Dear Dr. Taussig:

Thank you for your frank and gracious note of January 16th. I was of course very sorry to learn of your disapproval of our attempts at heart transplantation at Maimonides Medical Center. I was away when your letter arrived and then could not reach you by telephone. I would like to review some of the facts concerned with our efforts.

We started our experimental studies toward exploring the possibility of transplanting the heart in dogs about five years ago. Since that time, we have done well over 250 such experiments, obtaining a series of prolonged survivors. We have in our laboratory a colony of dogs with transplanted hearts; our longest survivor at present has been in good health for more than a year. By 1966, the surgical techniques were developed to the point where we could perform the operation with 90% assurance of technical success. We had also acquired a body of experience in histocompatibility testing and in postoperative management.

The possibility of performing heart transplantation in humans on a limited clinical-trial basis was discussed by our Research Committee approximately two years ago and approved. The first practical possibility of doing so occurred in June of 1966 when a child, deeply cyanotic with what appeared to be a single ventricle, was born in our Hospital. Our group--composed of pediatricians, cardiologists, and obstetricians, as well as surgeons--all felt that an anencephalic child with a good heart would not be an unreasonable donor--provided adequate attempts were made to assure that the potential donor had a normal heart. In that instance, two anencephalic babies were sent to Maimonides Hospital and one was considered a suitable donor. On the clinical death of the donor baby, the heart was removed and

perfused. At that time, anesthesia was begun in the recipient infant. However, ECG's of the donor heart indicated to the team that it was not vigorous enough to support the circulation of the recipient and this attempt at heart transplantation was aborted. Despite all that we could do, the potential recipient died two weeks later. In the Fall of 1966 a second effort was made for another possible recipient. No suitable donor was found and this baby died.

On November 18, 1967, a 37 year old woman gave birth, following a 40 weeks' gestation, to a 5 lb. 11 oz. baby. Very soon after, the child seemed to be in increasing difficulty, developing a rather severe cyanosis. On the first day of life, an angiocardiogram was performed in our cardiopulmonary laboratory and a diagnosis of tricuspid atresia was made. A palliative procedure was then considered. On the third day a Cooley anastomosis between the pulmonary artery and aorta was constructed and led to brief improvement in the child's condition. Three or four days later, however, the baby again appeared to deteriorate and it was not possible to take the child out of the incubator without the appearance of rather severe cyanosis. Our group again met and considered what best could be done for this child. It was our feeling that the baby had a limited life expectancy even though this had been prolonged to some extent with the aorta-pulmonary artery anastomosis. The decision then was made to suggest the possibility of a heart transplant to the family, describing it as an experimental procedure carrying extremely high risk. It was explained that this had never been done in humans, but that we had substantial experience in this procedure in animals. The family agreed, and efforts to locate a donor were begun. Wires (copies and previous explanatory letters are enclosed) were sent on November 24, 1967--a week before Dr. Barnard performed his surgery in Capetown. It took some time for a suitable donor to be located. Eventually we learned of an anencephalic child born at the Jefferson Medical Center Hospital in Philadelphia. With the consent of the parents, the child was transported here and upon clinical death, a transplant was performed.

The procedure was performed under deep hypothermia as we had done many times in the Laboratory. The operative procedure itself went well; it took 38 minutes to implant the donor heart. The child appeared to recover reasonably well from the procedure. However, we got into increasing difficulty controlling a severe acidosis often associated with hypothermia and we unfortunately lost the child six and a half hours after the completion of the procedure.

As far as our second patient was concerned, this indeed was a far different problem. Here, the donor was a 29 year old woman who had suffered an acute hemorrhage into a brain tumor causing her brain to swell and herniating her brain stem. After her hospitalization she suffered a cardiac arrest from which she was successfully resuscitated. The patient had expressed the wish to her father that if she were to die, she wanted to donate her vital organs for transplantation, and her physicians made contact with our hospital after discussion with her family. On transfer to Maimonides, the patient had a second cardiac arrest from which she again was resuscitated. This caused us considerable concern for there was electrocardiographic evidence of some myocardial ischemia. However, the ST segment tended to revert toward normal with good ventilation. Our own neurosurgeons and neurologists (not members of the transplant team) found the patient to be totally areflexic with widely dilated pupils. She had no respiratory movements of her own and had to be maintained on a respirator. A lumbar tap was done but was inconclusive. It was the independent opinion of the neurosurgeons that this patient indeed had a rapidly expanding brain tumor with irreparable brain stem damage. At the next cardiac arrest no attempt was made to resuscitate the heart, and it was removed and implanted into our recipient.

The recipient was a 59 year old man who had been in long standing right and left-sided failure so severe that it required his sleeping in a sitting position. His liver was markedly enlarged and his legs edematous. It was felt by our medical-surgical group that the patient had a very limited life expectancy and that there was no available treatment offering any outlook for him. In retrospect, the consensus here is that the extent of the ischemia affecting the donor heart, rather than its size, determined the unfortunate outcome.

As far as our relations with the press are concerned, I am as disturbed as you about the enormous and misleading press coverage that all of the heart transplant attempts have received. Certainly, it was clear even at the time of our first transplant effort, with a donor finally appearing just two days or so after Dr. Barnard's procedure, that it would seem to many that we were "racing to get into the act." Had it been possible for Dr. Barnard to report to the profession rather than to make an announcement for the lay press, the coincidence of the two operations would have been just another of the many events of this kind in scientific history. Although we knew of his many contributions in other areas of cardiovascular surgery, we knew of no reports in the literature on heart transplantation from his laboratory. We could only assume therefore that this excellent group had followed the procedures already described by other laboratories. Since our attempt was to be based on experience in our laboratory we did not feel, on balance, that we should cancel it. Indeed, to have allowed this factor to determine conduct of our effort seemed to us a compounding of the destructiveness of this sort of press coverage.

Several weeks earlier Dr. Shumway had announced his readiness to do a human transplant, and our readiness was known by science writers who had followed our work. With the coverage given the South African procedure, the interest of the news media was nothing short of frenzied. In spite of this, we had resolved to say nothing to the press. However, literally within minutes after the procedure was started--even though it was 2:30 in the morning--reporters and photographers from a New York paper descended upon the hospital. Someone whose identity has never been established had tipped off the newspaper. Before long hundreds of reporters, photographers and television people besieged the hospital. House staff and employees were being cornered to elicit fragments of "information." Faced with this atmosphere, we agreed that a statement had to be issued. A brief report was first sent to the Kings County Medical Society by Dr. Jacques L. Sherman, Jr., Medical Director here.

After that, it was impossible to persuade the press to leave; and when the baby died, it was agreed this had to be announced. I assented to a brief press conference. In describing our experience as an "unequivocal failure," I do think I succumbed to a personal need to counteract the effect of a surgeon walking out of an operating room following an initial human trial and saying that the procedure was a "success." The enclosed Associated Press letter, circulated to its members, was passed on to me, and their version of these events may interest you. With our second patient a similar series of events occurred, and we were again thwarted in the effort to withhold giving information to the lay press.

I fully agree with you, Dr. Taussig, that this kind of direct reporting to the newspapers and on television is destructive to research and misleading to the public. Surely, anyone with any research experience knows that in the earliest stages of clinical trial, the chances of failure are high. For myself, I don't see how anyone could choose to create this kind of environment for an effort that is difficult at best. This is a battle which I have tried to fight. On the auxiliary ventricle you will remember that there was no word of our first case to the lay press until science reporters who knew of our experimental work called us after an "artificial heart" had been announced elsewhere. We had by then discussed this case at a medical meeting in New York and prepared a case report for a professional journal.

In the recent episode the events were reversed. Much to our distress, heart transplantation was big news at the very moment we were preparing to do a case. I'm afraid I haven't been very successful in trying to handle this problem. Nor do I think it possible for one individual to withstand onslaughts of the kind to which we were subjected. My feeling is that responsible medical organizations must obtain agreements with the news media, setting up ground rules so that the individual

investigator and the individual institution does not stand alone. To my mind practical, realistic leadership from these bodies on how to approach this is urgently needed.

I might add that not one of the many hospitals contacted beginning in 1966 regarding potential donors ever betrayed our inquiry to the press.

Finally, I am very dismayed by your reactions. I have always felt and still do that you are one of the great pioneers in the development of modern heart surgery. Perhaps you were already aware of the foregoing and I have taken your time needlessly. If not, I hope you will consider these problems in writing your editorial. I should say that I still feel exploration of the possibility of heart transplantation should be carried out. I hope it will be at centers with a rich animal experience and for the present, only in terminal cases for whom there is no alternative.

I appreciate the kindness you have shown me in the past and particularly the forthrightness of your recent letter indicating what you are planning to do.

My best personal regards.

Very sincerely yours,

Adrian Kantrowitz

Adrian Kantrowitz, M.D.

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