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Transplantation

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In this paper Professor Calne pleads for a more informed approach to the problem of donor transplants, particularly in cases of kidney disease. He is concerned to inform both the medical profession and lay people. Establishing a computerized register of names and addresses of those who do not wish to have their organs used for transplantation after death would allow enquiries to be made immediately after death.

The second point of emphasis is that death of the brain is the death of the individual. A code of practice is suggested which should be followed in all transplantation centres and would allay the fears of the public and encourage the cooperation of doctors.

There are some 2000 new cases of terminal, irreversible renal failure occurring in patients between the ages of 5 and 55 each year in the United Kingdom. Many of these patients are teenagers or in their 20s and 30s. Their medical care during their terminal illness is a financial burden on the state which is aggravated by the loss of productivity resulting from their death. To the patients themselves and their relatives, kidney disease is a personal tragedy and their suffering and sadness cannot be measured in monetary terms. A kidney graft from an unrelated donor will provide approximately half of these patients with excellent therapy and restore them to normal life in the community. Of the remainder who would be expected, using present techniques, to reject kidney grafts, dialysis and a further kidney transplant should be available.

Deaths as a result of road accidents, cerebral tumour, and haemorrhage would provide more than 12000 kidneys a year, far more than are required, yet only 500 patients are receiving a kidney transplant each year in the United Kingdom.

The present lack of organ donors

The British Transplantation Society have recently published a report[1] from a subcommittee composed of transplantation surgeons and representatives from other professions. The report cites apathy in the medical profession as the main cause of the lack of organ donors. This apathy is encouraged by uncertainty in interpreting the present Human Tissue Act, the varying rulings of different coroners throughout the country, and, above all, the extra work involved. To have striven hard to save the life of an accident victim but to have failed leaves most doctors with a feeling of depression and in a frame of mind that is unlikely to be attuned to a whole new series of efforts directed towards transplantation. Thus he would be required to contact the relatives of the deceased and the coroner to obtain permission to remove an organ and to liaise with the transplantation unit over the operative arrangements. Often after working throughout the night, organ donation would mean another night of work when he could be sleeping. It is difficult for a doctor to transfer sufficient interest from his own patient to another, unknown patient who requires a kidney graft.

In the United States, where the Federal Government has funded transplantation fairly generously, the shortage of donors in many cities has disappeared completely. No doubt a similar occurrence would be expected in the United Kingdom if doctors were to be paid for their extra work, but in the present financial climate this would seem unlikely. The British Transplantation Society report is also concerned with the quality of organs used. Damage from ischaemia has often resulted in irreversible changes occurring in the organ while attempts were being made to obtain relatives' permission or to contact the coroner.

Two categories of organ donor

There are two categories of organ donor, namely, 1) the patient brought in dead or dying immediately after admission to hospital, where the diagnosis of death is straightforward but where the procedure for obtaining permission for organ removal may be difficult; 2) the patient with complete and irreversible brain destruction whose ventilation is maintained mechanically. In such cases the relatives and the coroner can usually be contacted because of the extra time available.

The clarification of the Human Tissue Act suggested by the British Transplantation Society is primarily directed towards the first category of patients who are brought into hospital already dead. It is suggested that there should be a computerized register of names and addresses of those people who do not wish their organs to be used for transplanta-

[1]*British Medical Journal* (1975). 1, 251–255.

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tion purposes after their death. This would assist the enquiries that must be made as to the wishes of the deceased in his life time, since it may not be reasonable or practicable to contact the relatives in the time available. The changes suggested are relatively minor but would remove some of the uncertainty that at present results in failure to utilize many organs for transplantation.

For the second category of patient with brain death, the report discusses this concept which is not very easy to explain to non-medical people. There are, however, two examples that may be helpful as illustrations of the fact that the brain and not the heart is the important organ to consider from the point of view of diagnosis of death. Thus, the decapitated guillotine victim would no longer be considered alive, although the heart could be kept beating and the lungs inflated mechanically for hours. If the head were separated from the body few people would consider the individual to be alive. On the other hand, it is perfectly possible to stop the heart and stop ventilation of the lungs and maintain the life of a patient in perfect condition by perfusing oxygenated blood through the brain. This in fact is done as a routine procedure in all open heart operations throughout the world. Nobody would consider the patient dead despite the fact that the heart is still and cold during the operation.

Diagnosis of brain death

Neurosurgeons and doctors in charge of intensive care units have been faced with the necessity to diagnose brain death so as to determine when to stop attempts at resuscitation with mechanical ventilation, since ventilation of a corpse can be of no value to the deceased and causes unhappiness to the relatives and nurses. The decision to stop mechanical ventilation has nothing to do with transplantation but once it has been made such a case should be a potential donor. Neurosurgeons are agreed that the diagnosis of brain death is not difficult and can be confidently made by any properly trained doctor. When the decision has been taken to stop the ventilator, the timing of organ removal must be decided. In the United States and many countries on the continent it is customary to remove organs while the heart is still beating. In fact this is the only way in which heart transplants can be performed, since the heart that has stopped beating from anoxia is unlikely to function well in a recipient. Dr Shumway (personal communication), who has by far the greatest experience of heart transplantation, feels that it would be unethical to transplant such a damaged heart.

Death of the brain is death of the individual

The British Transplantation Society's report explains that death of the brain is death of the individual, and education of both the medical profession and the public is required on this and all other aspects of organ transplantation. A code of practice has been suggested which requires that death be certified by two doctors, independent of the transplantation team, one of whom has been qualified for five years. Available relatives would be consulted and even if the donor had wished his organs to be used for transplantation purposes if the relatives objected their wishes would be followed. The code of practice would be adopted by all transplantation centres and would help to establish confidence that all aspects of organ transplantation were conducted in an ethical manner

Those caring for patients who require organ transplants have a responsibility to put the case of their patient's suffering to the public and the medical profession. The treatment of these patients, however, depends on the charity of the public and the cooperation of medical colleagues.

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