During the medical discussions of brain death held during the recent Conference on Brain Death, sponsored by the New York Academy of Sciences, it was clear that there was some confusion regarding the definition of death. One of the speakers emphasized that one should distinguish carefully between the definition of death and the definition of criteria for death. As far as the concept was concerned, an adequate definition of life (which he felt was not yet available) was a necessary prerequisite. Yet there seems to be an agreement that death involves an irretrievable loss of life. With regard to the medical criteria for death, an agreed upon set of guidelines which recognizes the range of circumstances in which such a decision must be made is of prime necessity.

The term "brain death" also was subject to criticism. In the strict sense, "brain death" should be taken as death, or irreversible non-functioning of the total brain: cerebrum, cerebellum, pons and medulla oblongata. However, sometimes it seems to be used as equivalent to "cerebral" death, interpreted to mean death of most of the brain but excluding cerebellum, pons and medulla.

One of the speakers, Dr. John Hughes, stated that brain death is an irreversible cessation of function of all brain functions including the cerebellum and brain stem down to the C-1 segment of the cord. Considerable time was spent discussing the use of the EEG as a means of ascertaining or confirming brain death. It is clear that the use of scalp electrodes measures primarily electrical activity in the cerebral cortex, even though the subcortical functions may have some influence on cortical readings.

The presence of electrocerebral silence (ECS) is no sure indication that the whole brain is dead. Dr. Ingvar, professor from the University of Lund in Sweden, who has been very active in this field, reviewed eight patients who were in a condition he termed "aplastic syndrome." This syndrome is characterized by the loss of all higher functions, while the brain stem reflexes persist. The EEG is greatly depressed and at times there may be electrocerebral silence. The cerebral blood flow is also depressed. There is very little or no activity in higher brain centers. He recalled one patient who lasted seventeen years. When the patient finally died, an autopsy revealed that the brain had shrunk to one-fourth its normal size. Essentially, only the subcortical areas remained; the neocortical areas were substantially absent, those areas generally associated with the distinctively human activities of thinking and willing.

Whether total brain death is equivalent to death of the person may be questioned by some. Certainly it is a question too important for easy dismissal and appears to be more a philosophic and theological matter rather than medical. With the evidence presented at this Conference on Brain Death, it would appear evident that with proper definitions and distinctions an acceptable set of medical criteria for determining total brain death is now attainable.

More On DNA

The heat which was generated by the controversy around the research involving recombinant DNA has been reduced with the elapse of time to a lower intensity. Senator Edward M. Kennedy (D.-Mass.) announced on the 27th of September that he would withdraw his controversial Bill S1217. Evidence indicating that the risks which had been claimed to be associated with recombinant DNA research have been somewhat overstated. Consequently, Mr. Kennedy recommended a one year extension of current NIH Guidelines for those engaged in recombinant DNA and that there should be a continued involvement of the society at large in the process of evaluating, developing and implementing a suitable policy for scientific and medical research.

Now that the temperatures have decreased somewhat, it may be possible for scientists, concerned laymen and legislators to come up with a proposal which would meet the needs of all parties involved with due recognition of the dangers as well as of the positive contributions that such research can make. This illustrates well the fact that now much of science is no longer developed in its own private ivory tower but must face the scrutiny of the public-at-large. On the other hand, the public has the important role of listening carefully to the scientists and engineers, doing its best to understand and then to indicate its concerns clearly and vigorously so that whatever legislation is ultimately passed will be consonant with the facts as then understood and will best serve the common good.