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BIOETHICS DISCUSSION GROUP

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XENOTRANSPLANTATION

Xenotransplantation involves the use of body elements from certain animals to replace organs, tissue and cells in the human body to make good a defect in human functions or organs.

This practice has seen a number of attempts due to a lack of human organs and tissue over several decades and because of the current impossibility of providing a totally artificial device.

If medical science continues along this path and if the practice should be generally accepted by society, it has been estimated that xenotransplantation could create a market worth 6 million euros by 2010. We understand that several pharmaceutical companies, commercial trusts, farm-laboratories, etc. are already financially committed to research in this field.

Nonetheless, it should be noted that in the case of xenotransplantation of the liver *in situ*, the experiments carried out to date have resulted in a maximum survival period of 70 days for patients who have undergone such a procedure.

We also note the concern of many scientists who point to the great uncertainty over the risks that xenotransplantation may involve for humanity as a whole. This hesitation is reflected in a state of at least equal perplexity amongst those who have taken part in ethical discussions in this domain.

The members of the Bioethics Discussion Group set themselves two preliminary questions: The first concerns the degree of importance accorded to biological life, and the second addresses the attraction exercised by the “scientific” aspect.

- There is a remarkable trend of pushing back ever further the frontiers of life, trying at all costs to cross the thresholds of human existence. Does this reflect a determination to “live at any price”?
- Aren't western societies, especially in Europe, tempted to give priority to anything that involves a high level of scientific content and has a spectacular aspect? Such a priority is exercised to the detriment of satisfying the basic health needs of the population.

Although the magisterium has justified allografts in the name of charity and the solidarity of humankind, it has nevertheless not pronounced on the subject of xenotransplantation. The Bioethics Discussion Group has not come to any definitive conclusions; however, it believes that it is necessary to answer a few major questions.

Firstly, concerning the health risk: xenotransplantation could cause infection of humans by retroviruses, which are present in animal cells or which appear after recombination with human viruses. We quote from a report made on this subject presented by Gian-Reto Plattner, on 15 October 1998, to the Parliamentary Assembly of the Council of Europe: “*Animals carry viruses and prions that do not exist in humans and against which the human organism has no defence. It therefore cannot be ruled out that cells, tissues and organs of animal origin transplanted to humans could contain infectious agents. These pathogenic agents (could) then reproduce in the human organism and cause diseases that, if the recipient contaminates other individuals, could take on pandemic proportions. Cell contacts favour recombination with human viruses, a mechanism that is well known in the appearance of new pandemics. Infectious diseases with long incubation periods (would be) particularly formidable because they have generally already begun to propagate by the time they are detected.*”

No doubt certain scientists believe that the probability of such infections is low if the necessary precautions are taken in breeding animals destined for xenotransplantation, but we cannot ignore the potentially pandemic scale of any infection, which calls for the greatest prudence!

This is the reason why there are proposals in both the United States and Great Britain for a moratorium on all forms of xenotransplantation and calls for the government to set up authorities for the strict evaluation of trials under way.

Xenotransplantation also poses medical problems that have not been adequately resolved. It is necessary to have a better understanding of rejection and the physiology of the animal. The day may be near when these medical questions are resolved. In this case, doctors may be faced by serious conflicts of conscience if they judge that some of their patients in a desperate situation would certainly benefit from xenotransplantation. Compassion could prompt them to take such an initiative.

The question of the risks varies depending on whether it concerns the transplantation of organs, grafting tissue, grafting cells (whether or not inserted in capsules), or the use of extra-corporal systems using elements of animal organs (such as an artificial liver containing elements of an animal liver). Even in such cases, caution is still called for in the name of the common good of the population as a whole. Xenotransplantation also raises ***questions concerning the relationship between humans and animals*** that have not yet been adequately explored.

Unforeseen reactions have already been observed concerning allografts between humans. Problems of identity or a compromise of the “spiritual personality” could arise as transplants expand to cover the nobler organs with a heavier sentimental or emotional charge. The experience acquired in this field should not lead us to underestimate the changes in behaviour and new, specific and unexpected relationships that may form between the donor and the recipient, both of whom are human. Humanity also concerns the spirit and there are therefore likely to be identity reflexes.

We cannot necessarily know in advance how humans will tolerate the substitution of vital organs from animals for their own organs. The reaction will probably be different for the use of organs, tissue, cells and biotechnological devices. One might also well wonder how the person would preserve his own identity and unity.

More generally, the relationship between animals and humans plays a role in how humans understand themselves. The use of animals not only as food, but also as an integral part of the human body, therefore poses anthropological questions that it is of the greatest importance to explore. For the Bioethics Discussion Group xenotransplantation – especially of organs – seems to raise a number of still unresolved questions.