

Tissue and Organ Transplantation: Ethical and Economic Considerations in Different Health Systems

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After spending the whole day learning about current advancements in transplant medicine, our so-called "standby knowledge" was updated with many significant details. Although I have learned a lot, we all realize that we will need to have another upgrade in a year or two because our information has a limited shelf life. However, the ethical aspects of transplant medicine need to be discussed. These aspects deal with principles and guidelines that have been in existence for hundreds of years and may have an infinitely long half-life.

What makes transplant medicine so unique? Both a patient and a doctor are always available to assist but there is also a donor from whom a committed surgeon will explant the needed organ. It is possible, and does occur, that a transplant surgeon is unfamiliar with the cultural or ethical system of the donor. Therefore, transplant surgeons need to consider the big picture before making local decisions and so these components must be included in "Global Ethics."

Galileo Galilei once said, "measure what is quantifiable and make measurable what is not". But how should we handle the remaining immeasurable aspects of both life and medicine? Which currency is appropriate to use? When we think globally, we realize that there is no single currency that can be used everywhere. How do we handle culturally significant items? At this point, I hesitate to provide any judgments but perhaps we will come to the similar conclusion. However, affluence, self-perception, and the willingness to prioritize things like transplant

medicine in healthcare systems vary between nations. To generate as many years of excellent corrected vision as feasible, ophthalmologists may replace the cornea entirely or at least a portion of it with donor tissue. Legally, the cornea can be kept in culture dishes for a few weeks since it is a tissue, not an organ.

Around 216 million people are visually impaired worldwide, out of which 4.5 million (around 2 %) have moderate to severe vision impairment because of a loss of corneal clarity.¹ Due to corneal opacities, 98% of people who are corneal blind reside outside of so-called industrialized nations.² But due to several region-specific circumstances, only 01 person in 70 people with curable corneal blindness eventually receives a transplant. With 200 transplants per million each year and roughly twice as many donor corneas, the United States dominates both statistics. Therefore, about 60,000 corneas are available for export to other nations. Germany has a rate of 1/1, making it a pure self-supplier. Japan gets 50% of what it requires but China has different issues which will be discussed later. I called my 20 colleagues and acquaintances throughout the globe to reflect the context of these numbers. I'll paraphrase a few of their responses. Why is USA so effective? Each hospital in the USA is required by law to work with an eye bank. These institutions are nonprofit eye banks. As we know from our American friends, there is no doubt that there is a competition to collect as many corneas as possible in each region. The Eye banks locate trained non-professionals in each hospital to communicate with potential donors and their families. Only medical personnel may do enucleations. Corneal buttons in tissue culture for transplantation exceed by far the in-country need and are exported to other parts of the world, like Pakistan, Japan, and Egypt. What about Japan, a country with the highest standards in education technology, and economy? Prof. Teruo Nishida from Yamagushi summarized the Japanese

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situation: The need for corneal transplant surgery equals the American situation. Due to the ethical and religious tenor of most of the population, tissue and organ donation programs are not able to the nationwide requirements. Also, potential recipients are hesitant in their decision due to ethical and religious considerations. The concept of purity interacts with transplantation medicine in general: "You should not allow a part of a deceased body to become a part of yours". Ninety-five percent of corneal transplants donated to Pakistan come from US doctors of Pakistani ancestry and about 5395 corneas grafted since 2015. Peshawar data confirm this statement. In Faisalabad, they have moved one step forward by starting an eye bank with local retrievals.

The situation in China appears to be rather complicated. According to data, 40,000 corneal transplants occur annually. According to Professor Tao Yao of Shenyang's, China is a multi-ethnic and multi-religious country. Most ethnic and religious groups embrace and encourage organ donation. Both donors and recipients of corneal transplantation are not constrained by their nationality or religion. However, it is important to note that, due to religious restrictions, the use of commercial corneal products derived from pigs is still restricted for patients of Hui nationality who practice Islam, and porcine cornea is not always the only option. It is well known that those who had been executed had their organs retrieved from them. This is stated in a recent review by Robertson and Lavee that was published in the American Journal of Transplantation and revealed the following: "Our findings strongly suggest that physicians in the People's Republic of China have participated in executions by organ removal because these organ donors could only have been prisoners".³ Doctors will carry out executions! We learned that there is no legal framework for organ transplantation in Congo, where

we have been collaborating for 20 years. China Achebes projection into the future sounds very positive, let's hope for the best: "We do not have the same past, but we will have exactly the same future, the age of isolated destinies is over once and for all". Alvin Roth showed how the "Kidney Exchange Program" in the US, which uses living donors, may be extremely successfully helped by game theory-based algorithms. As a result, the number of kidney transplants has increased by more than twice as much. Even though many people, both inside and outside of the medical profession, are opposed to paying individuals for their organs, he envisions a possibility that someday people could be able to get paid for their kidneys. He openly and seriously debated concepts like "criminalizing kidney donation" against "legalizing prostitution." Did you realize that the danger of liposuction is comparable to the chance of renal explant? In her most recent book about Afghanistan, Natalie Amiri, an Iranian-German author and journalist, revealed disturbing information: There weren't many people with two kidneys among the distant areas she visited. Therefore, there is undoubtedly a black market of unknown size for the red market. Nobody knows if it will be possible to handle the massive system of legal and ethical control mechanisms required to govern this scenario. Given that we do not live in a perfect environment, the issues we have outlined are ongoing. You may choose between seeking the truth and finding peace of mind, but not both at once. If our only motivation for doing our jobs was morality or attitude, we would be unable to complete them. We must understand that managing patient care, science, and administration are equally important tasks. Of course, Max Weber, a German sociologist was aware of this problem. He only wanted to get our attention and get us to consider both sides of the coin.

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Corrigendum:

It is intimation for all readers regarding article titled “Complications of Sub-Retinal Fluid Drainage in Scleral Buckling” in our journal volume 1, issue 1, Jan 2023 - June 2023 (Page 11 - 14). The second last sentence “No complications were found in 11.3% eyes” of abstract under results subtitle on page 11 should be corrected and read as “Complications were found in 11.3 % eyes”.