

The Current Situation and Countermeasures of International Organ Donation

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Abstract: Organ transplantation benefits mankind. However, the global medical community faces an acute shortage of donor organs for transplant. The organ shortage is also a social problem faced by countries around the world. This paper analyzes the current situation and existing problems of organ donation and transplantation in the world and compares and summarizes the collected data by searching relevant domestic and foreign essays. To raise the level of human organ donation, improve the problem of organ shortage, and promote sustainable and healthy donation by strengthening publicity, optimizing the mode and process of organ donation, perfecting the organ distribution mechanism, speeding up the legislation of brain death, and perfecting the relevant laws of organ transplantation.

Keywords: Organ donation, organ transplant, organ gap, brain death, organ allocation

1. Introduction

One of the most groundbreaking medical procedures from the 20th century is organ transplantation, providing hope for patients with organ failure to regain their health. Since the first successful kidney transplant took place in the United States in 1954, tens of thousands of patients worldwide have experienced extended lifespans and improved quality of life each year. The conversation about organ transplantation is not solely scientific, it's also a complex dialogue encompassing politics, society, ethics, and culture. The scarcity of available human organs for transplantation and the growing number of patients in need has given rise to a global concern known as the "organ gap". Based on the domestic and foreign literature, this paper compares and analyzes the practices of various countries in the world, and puts forward some countermeasures and suggestions to improve the problem of organ gap.

2. Current status of human organ donation

The majority of countries have laws in place that prohibit the trade of human organs. Human organ transplants rely on voluntary, unpaid donations, which are generally categorized into two types: body donations and living donations. Living organ donations come exclusively from specific groups of individuals, usually close blood relatives, to prevent disguised organ trading, which can lead to illegal organ-related activities. Body donations occur after an individual's passing, following their wishes and with family consent, and are provided at no cost. Spain's organ donation and transplantation has an absolute leading position in the world. The five countries with the highest

PMP(per million people) for organ donation in 2021 are all from European and North American countries with relatively mature organ donation systems, while the PMP for organ donation in Asian countries is generally low[1]. With the increase of publicity and the improvement of the legal system, more and more people begin to accept the concept of organ donation and transplantation and become donor volunteers, thus, more patients gain "a second life" from organ transplantation. Now even in countries with the highest PMP, the number of organ donations still cannot meet the needs of domestic patients. The supply-demand ratio for organ transplantation is 1:3 in some countries with high PMP, while 1:30 in other countries which are facing a particularly difficult status. The solution is to increase the level of organ donation, which depends on the capacity of the health system, the willingness of citizens to donate, the credibility of medical institutions, the efficiency of the organ donation and transplant system, the media effect, culture, education, etc.

3. Suggestions to alleviate the problem of organ gap

3.1. Enhance public awareness efforts and cultivate a culture of generosity

There are clear differences in the willingness for organ donation in different countries. The public's blurred cognition of organ donation and the absence of publicity are the important reasons for the low willingness of citizens to donate organs in various countries. Now, many countries have organ donation days, striving to popularize the knowledge of organ donation through network broadcasts and documentaries to enhance organ donation awareness. In some countries, initiatives promoting organ donation are integrated into any part of the licensing process, which has greatly improved the PMP of organ donation. Organ donation is based on the spirit of altruism, which should be integrated into the publicity of organ donation. Additionally, there's a need to introduce and cultivate altruistic values within educational institutions [2].

3.2. Streamline the process of organ donation, along with the organ allocation system

Internationally, consent models for organ donation mainly include "Presumed Consent" and "Informed Consent" [3]. In the "Presumed Consent" model, the deceased did not express a refusal to donate organs during life, giving tacit consent to donation, but citizens have the option to register their refusal to donate organs after death. In the "Informed Consent" model, citizens can voluntarily register their consent to donate their organs after death, and families of deceased people who have not expressed a clear desire to donate their organs will decide whether to give consent. Some countries have adopted the flexible "Presumed Consent" model according to their reality, which not only respects family perspectives and eases implementation but also capitalizes on the "Presumed Consent" model's advantages, potentially boosting donor numbers. In some countries, the organ donation process is more complex. They should streamline the entire process to simplify citizen registration and encourage organ donation intention. Given the pressing organ shortage, effective organ allocation is pivotal [4]. The 2012 manipulation of patient data in European organ transplant centers triggered a crisis of public trust in the system, significantly reducing donation rates, which fell 12.8 percent from 2011 to 2012 after death. The health system around the world faces a complex challenge: mitigating uneven distributions due to structural flaws in power dynamics, financial systems, and politics. Establishing trust among the public regarding organ donation and fostering willingness to donate hinges on the creation of a fair, transparent, and impartial organ distribution system. This involves emphasizing distribution principles, enhancing transparency in allocation, and inviting public and health administrative oversight.

3.3. Accelerate the legislation on brain death and improve the quality of organ transplantation

As per current societal understanding, brain death is widely accepted as the true indication of human death. Despite over 90 other nations legally recognizing brain death as the definition of death, some countries haven't yet adopted this stance. The transplantation of vital organs is constrained by tight time frames, where the timing of organ retrieval significantly impacts both the donor's organ quality and the transplant's success. While organs can remain viable with the help of respirators and other devices after brain death, they face rapid and irreversible dysfunction once cardiac death occurs. Blood flow ceases, and ischemia and hypoxia lead to organ damage beyond repair [5]. Enhancing the standard of organ transplants and minimizing medical disputes can be achieved through legislative efforts related to brain death. This involves defining criteria and procedures for identifying brain death and making it illegal to remove organs from a deceased individual without their prior consent after brain death has been established.

3.4. Strengthen the network of organ transplant coordinators

Strengthening the identification and referral of potential donors and improving the process of obtaining family consent would be more effective and faster than using publicity to increase people's willingness to donate. Organ donation and transplantation is a complex system process, including the discovery of potential donors, medical evaluation, donor management, legal confirmation of brain death, family consent, legal consent, organ harvesting, maintenance and preservation until transplant surgery, etc. Coordinators play a crucial role in the organ donation and transplantation process. He needs to contact organ donors, family members, the death determination team, the organ procurement team, legal counsel, the organ delivery team, and others, which has become the main line running through this "multi-departmental coordination system". The most important reason why Spain has been able to maintain the world's leading rate of body organ donation is due to the "establishment, expansion and improvement of a network of professionally trained coordinators"[6]. In Spain, the coordinators are part-time doctors and nurses in hospitals. In other countries, part-time hospital coordinators work with full-time Red Cross coordinators. The part-time coordinator is responsible for the discovery and referral of potential donors, and the subsequent donation confirmation and witness organ harvesting are jointly completed with the full-time coordinator, and the follow-up memorial and humanitarian relief work is entrusted to the full-time coordinators. This division of work needs to be carried out alternately by two implementers, which is prone to cohesion problems, and it is necessary to further optimize the work system of the coordinator.

3.5. Improve relevant laws of transplantation

In western developed countries organ transplantation has a relatively perfect law [7-8]. However, the current legislation of some countries in the world still needs to be improved. Most of their legislation is standardized from the micro aspect, while the micro provisions are more abstract without specific refinement or even partial absence, resulting in legal gaps. As a result, the deep legal problems emerging in the organ transplant couldn't be explained, when the legal and moral conflict. It is very necessary to further improve the relevant laws and regulations. At the same time, we will implement "zero tolerance" for illegal organ donation and transplantation, strengthen international cooperation, and effectively combat the black market and criminal acts caused by the shortage of human organs.

4. Conclusion

Organ shortage has become the biggest problem restricting the development of organ transplantation. Countries around the world are actively looking for solutions. Some Western countries have accumulated certain experiences and achieved certain results in organ donation and transplantation publicity, brain death legislation, allocation systems, organ donation model and process planning, coordinator network construction, legal system construction, etc. Based on learning from the good experience and measures of these countries, countries need to explore the organ donation process and system suitable for their national conditions to solve the problem of organ shortage. With further research on organ cloning and 3D organ printing [9-10], the problem of organ shortage will be able to be solved in the future.

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