

Organ Transplantation - A New Arena in Nursing

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Abstract

A man waits and wonders if a new heart will arrive. A woman walks without pain with a bone transplant. A child grows up with a new liver. A mother in the midst of tragedies in her own life helps give life to others through organ donation. These are the stories we have heard about the lives transformed by the miracle of organ & tissue donation and the stories of men & women, who give and receive the gift of a lifetime. Please do remember they are not the statistics of medical literature. These are ordinary human beings who have made a difference in the life of another person and at any moment it could be each of us.

Introduction

Over the course of the last century organ transplantation has overcome major technical limitations to become the success as it is today. The breakthroughs include developing techniques for vascular anastomoses, managing the immune responses and devising preservation solutions that enable prolonged periods of ex-vivo storage, while preserving function. Life related and unrelated donation predominate all organ transplant done in India. Most commonly transplanted organs in India are Kidney and Liver

History

It is Jaboulay and Carrel who developed the techniques of vascular anastomoses which paved way for transplantation. First renal transplant was done by an Ukrainian surgeon on Yu-Yu Voronoy in the year 1936. The first heart transplant was done in 1967 in Cape Town whereas the first liver transplant was at Pittsburgh in the year 1967. In India the first

Kidney transplant is done in at CMCH Vellore in the year 1971. Reitz and colleagues performed the first heart and lung transplant in 1981. The real breakthrough happened with the introduction of chemical immunosuppression. The modern immuno suppressive era came with the advent of Cyclosporine. Advances have reduced incidence of acute rejection. It may be realistic to aim for a state of almost tolerance where minimal immuno suppression is required.

Organ Donation

Is the harvesting of an individual organ after a person dies or while living, for the purpose of transplanting to another person. The person who gives the organ is the donor and one who receives is the recipient. All can be donors who are not with any active medical conditions.

Organs Donated

Vital organs like liver, kidney, heart, intestine, lungs and pancreas can be transplanted. The scope of tissue donation also has advanced. eg. Skin, cornea.

Impact of Organ Donation

For organ recipients, transplant means a second chance of life. It allows many recipients to return to

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normal life style. For others it may be ability to regain or recovery of movement or freedom from pain.

Advantage to grieving families

It has the ability to comfort the grieving family members. They may draw comfort by participating in saving life of others. Most of the family members think that it was the only positive outcome from their loss.

Decision on organ donation is difficult especially when one has lost a dear one. But it is a generous and worthwhile decision by which you can save lives without costing anything just by handling the emotional conflict.

To be an organ donor there are many foundations with which one has to register. There are currently more than 150 centers on India performing 3500 to 5000 Kidney transplants each year. Four centers undertake approximately 50 to 300 liver transplants annually. Out of 1200 liver transplant approximately 20 to 50 transplants are done from deceased donors and the rest from living donors, so far in our country about 100 heart transplants are done.

Challenges faced in Organ transplantation

● **Shortage of Donors**

One challenge that remained from the beginning is shortage of suitable donor organs. It is satisfying to note that the results of organ transplantation continue to improve. The trend continues to be that there are less number of donors than potential recipients in waiting. About 30 Americans die every day waiting in vain for an organ, usually a kidney. Even if every American signed a donor card still there will be organ shortage. That is because all who die are not eligible to be donors. Only 10500 – 13000 Americans die under conditions that would allow organ donation. While the need is 90000 and life on dialysis is not an easy walk and total span of life on dialysis is 4 years on dialysis. In India 500 000 people die because of non-availability of organs. Nationally with a population of 1.2 billion people the statistics stand at 0.08 persons as organ donors / million population. In USA, UK, Germany it is about 10 – 30 / million population. Countries like Spain, Belgium has more aggressive approach of presumed consent which permits organ donation by default unless the donor

opposed during his life time. In an effort to lessen the gap between demand and supply, there is increased focus on live donors than deceased donors.

● **Trafficking**

At the same time there is another side of the story that is real. Trafficking in organ procurement, illegal sale or removal of kidney had been reported in many countries. We are no way different. The process of commercial donation of organs becomes a simple quick and attractive business proposition and a solution for many others. Those who can afford prefer to buy a kidney rather than donating.

● **Preservation**

Preservation of the organ is another challenging phase of the whole process. Preservation solutions are devised to counter the effects of ischemia and minimize injury associated with reperfusion.

The purpose of organ preservation is to prevent or arrest anaerobic metabolism leading to death of tissue.

● **Immuno suppression**

In 1950's success in bone marrow transplantation between siblings had been achieved by using total body irradiation. The real breakthrough came with chemical immune suppression that could suppress the immune system sufficient to prevent engraftment of the transplant, while ensuring protective immune responses. The first successful agent was Azathioprine which was shown to be effective.

The drug cyclosporine was discovered in mid 1970's. Cyclosporine improved dramatically the results of kidney transplantation so much so 90 to 95% kidney transplants survive one year on cyclosporine. It is effective in liver, pancreas, heart and lung transplantation. It inhibits the cell proliferation by blocking the activation. Patients who are on immunosuppression have a higher risk for infection and malignancy. Nurses play a major role in preventing infection.

● **Complexity of Postoperative care.**

The recipients of transplant demands for specialized care with the goal of preventing all complications more importantly acute rejection. Nurses working in these units are to be equipped with required skill and knowledge of management of a patient undergoing transplant

Contra Indications for Organ Donation

Cancer, Active HIV, active infection, IV drugs usage, Hepatitis B& C.

Clinical results in organ transplantation

The results of transplantation of all solid organs have improved. Donors are now older and more commonly donate spontaneously.

Newer trends in Organ Allocation

Priority allocation

Several models of priority organ allocation have been proposed in the recent past. Attorney Jonathan K. proposed that a way to increase organ allocation is to give preferred status for who are registered as organ donors. Rupert Jarvis proposed that, in the setting of scarce organs, only donors are allowed to be organ recipients. The central theme is that the people who are willing to give organ should be the preferred recipients. This is already practiced in U. S. A and this would improve the willingness for organ donation. Nothing could be simpler, fairer and nothing in the law says that priority allocation cannot happen.

Role of Nursing in Organ Donation and Transplant

Organ Donation

- Donors selection and preservation of tissue
- Creating strategies to improve to organ donation and recovery
- Educating public regarding organ donation

Organ Transplant

- Identifying possible donors
- Providing relevant information to general public.
- Providing relevant information to families, considering organ donation
- Being an advocate for families and patients on informed choice considering religious and cultural beliefs
- Working closely with health team members.
- Providing clinical expertise and emotional care to patients and their families.
- Participating in pre- transplant work up

- Peri-operative management of organ transplant.
- Post transplant monitoring ,management, infection control and health education

Agencies in India involved in organ donation:

- Mohan foundation – 1977- Chennai
- NOTTO – National Organ and Tissue. Transplant organization under Ministry of Health and family Welfare, in Safdarjung Hospital, Delhi. www.notto.nic.in
- Tata Memorial Hospital Tissue Bank. Mumbai
- Zonal Transplant – Co- ordination Centre at LokmanyaTilak Municipal General Hospital, Mumbai

Conclusion

Throughout the history of organ transplant nursing has played a major role in the provision and advancement of the care of organ recipients as well as donors and their families. Multiple factors determine the nursing care which is specialized and demands for expert knowledge and skill from experienced nurses. It also demands for high level expanded care inside and outside hospital setup

Allocating organ donors can save thousands of lives. Establishing national donor registry can improve the shortage. Improving public awareness's on registry and priority allocation can be also a major area for nursing personnel apart from providing direct care to donors and recipients

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