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Editorial Office
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E-mail: redflowerppl@gmail.com, customer.rfp@rfppl.co.in

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Effectiveness of Music Therapy in Reduction of Anxiety among Patients undergoing Dialysis

Vijaya M. Udumala

Abstract

A study was undertaken to evaluate the effectiveness of Music Therapy in reduction of Anxiety among Patients undergoing Dialysis in selected Hospitals in Hyderabad, Telangana. Patients were selected by random sampling technique. The conceptual framework of the study was based on modified Imogene King's Goal Attainment Model. Data were collected by using modified Zung Anxiety Rating Scale from 50 patients undergoing Dialysis. The study revealed that majority of the patients (88%) reported moderate to severe anxiety in pre-test, whereas (56%) reported mild to minimum anxiety level after the Music Therapy. The statistical "t" test value was found to be significant at 0.001 level and thus it is inferred that Music Therapy is highly effective in the reduction of Anxiety level among Patients undergoing Dialysis.

Keywords: Effectiveness; Music Therapy; Dialysis; Patients; Anxiety.

Anxiety is associated with an undefined threat to one's physical as well as psychological self, resulting in numerous physical conditions and psychiatric disorders. It affects the endocrine, autoimmune and metabolic systems and causes toxic disorders.

The Patients who are undergoing dialysis may develop anxiety. Anxiety, an emotion characterized by feelings of apprehension and helplessness, most patients would prefer to be relieved of.

Music is universal and connects across language barriers. Most people can respond to music in some way regardless of illness or disability. Music is known to reduce stress thereby producing related benefits such as lower blood pressure, improved respiration, reduced heart rate, better cardiac performance and reduced tension in muscles.

Statement of the Problem

"Effectiveness of Music Therapy in reduction of Anxiety among Patients undergoing Dialysis at selected Hospitals in Hyderabad, Telangana."

Objectives of the Study

i. To assess the level of Anxiety among Patients undergoing Dialysis before and after administering Music Therapy.
ii. To evaluate the effectiveness of Music Therapy in reduction of Anxiety among Patients undergoing Dialysis in terms of gain in post-test scores.
iii. To find out the association between the pre-test scores of Patients undergoing Dialysis with selected Demographic Variables.

Hypotheses

H_1: There is a significant reduction in Anxiety level among Patients undergoing Dialysis after receiving Music Therapy at 0.05 level of significance.

H_2: There is a significant association between the pre-test scores of Anxiety level among Patients undergoing Dialysis with selected Demographic Variables at 0.05 level of significance.

Conceptual Framework

The Conceptual Framework adopted for this study was based on modified Imogene King's Goal Attainment Model (1981).

Research Methodology

This study used a quasi-experimental study design.

Author Affiliation: Principal cum Professor, JMJ College of Nursing, Hyderabad.

Correspondance: Vijaya M. Udumala, Principal cum Professor, J.M.J. College of Nursing, St. Theresa's Hospital Campus, Sanathnagar, Hyderabad – 500 018.
E-mail: vijayaud@gmail.com

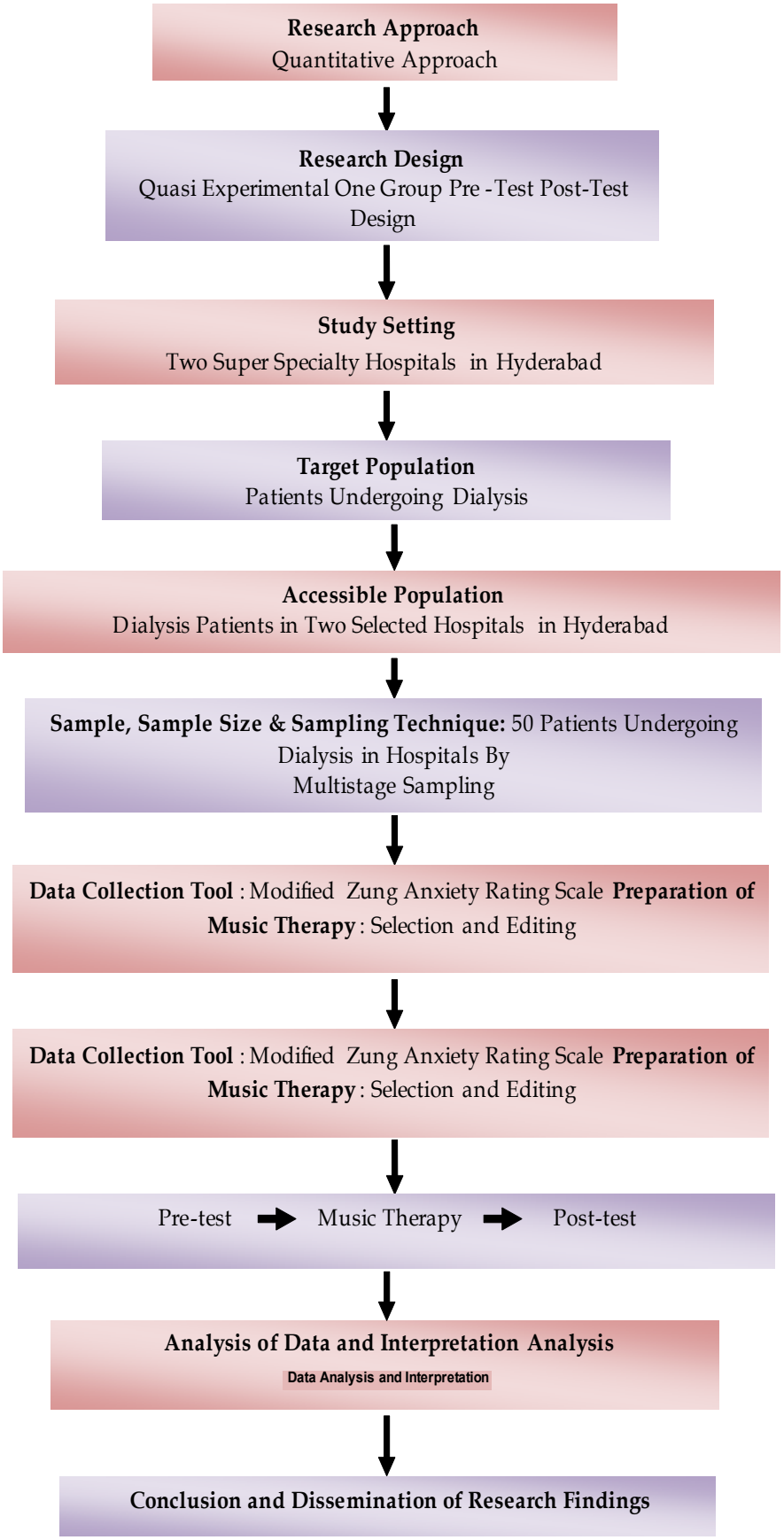

Fig. 1: Schematic representation of study

Group	Pre-test	Intervention	Post-test
RE	O_1	X	O_2

RE: Randomly selected experimental group

O_1: Pre-test before administration of Music therapy.

X: Administration of Music therapy to the patients undergoing Dialysis.

O_2: Post-test after administration of Music therapy.

Research Variables

- The independent variable is Music therapy.
- The dependent variable is level of anxiety among patients undergoing Dialysis.

Sample and Sampling Technique

This study used a multistage sampling. Two Super Specialty Hospitals in Hyderabad were selected randomly. The total study sample was 50 patients undergoing Dialysis, who were selected by simple random sample.

Data Collection Tool

Modified Zung Anxiety Rating Scale was used to assess the Anxiety level of Patients undergoing Dialysis.

Pilot Study

The pilot study was conducted in February 2015. It revealed the feasibility and practicality of the study.

Main Study

The main study was conducted in March 2015. The data collected was analyzed using descriptive and inferential statistics.

Results

Findings related to Demographic Variables

- The maximum number (36%) of patients was between the Age group of 31-40 years. Majority of patients (52%) were females.
- Majority of patients (46%) were graduates and half of them (50%) had monthly income ranging from Rs.5, 001-10,000.
- All the patients (100%) had previous experience of Dialysis and some patients (40%) had Dialysis treatment three times in a week.
- Majority of patients (86%) had not used any relaxation techniques before this study.

Findings Related to the Level of Anxiety in Pre- and Post-Test Scores

- Majority (88%) of patients had moderate to severe level of Anxiety in pre-test, while (56%) of patients had mild to minimum level of Anxiety in post-test. This revealed that Music Therapy was effective in reducing the Anxiety level of patients undergoing Dialysis.

Findings Related to Effectiveness of Music Therapy on Anxiety among Patients undergoing Dialysis.

The post-test mean Anxiety score was 64.00, which is significantly lower than the pre-test mean score of 71.84 with a mean anxiety reduction of 13.82. Hence, it is inferred that the mean reduction in anxiety was due to music therapy.

The calculated t value, 5.99 was greater than the tabulated value with 49 degrees of freedom at 0.001 level of significance. Hence it is inferred that Music therapy was effective in lessening post-test anxiety scores among Patients undergoing Dialysis.

Findings Related to Association Between Anxiety with Selected Demographic Variables

There was statistically significant association between the level of Anxiety and the demographic variables of patients such as Age, Family Monthly income and Duration of the Disease.

Implications of the Study

- Nurses are obliged to provide patients with non-pharmacological therapies to cope with altered life style.

Table 1: The mean, standard deviation, standard error and paired t-value on pre- and post-test level of anxiety scores

Test	Mean	SD	SE	t-value	
				Cal Value	Table Value
Pre-test	71.84	7.27	1.029	*5.99	3.551
Pre-test	64.00	10.39	1.469		

n=50 **Significant at 0.001 level*

- Nurses need to assume roles as motivators, educators and researchers and counselors.
- Nurses are the key providers in promoting relaxation techniques to help the overall well-being of the patient in hospital and other care settings.
- The administration should enable the nursing personnel to develop newer skills through continuing education programs.
- Nursing research is the means to develop advanced patient education interventions and there by contribute to the development of Nursing Profession.

Recommendations

- A similar study can be undertaken on large samples, so that results can be generalized.
- A comparative study can be carried out between Music Therapy and other relaxation techniques like Yoga and meditation.
- A descriptive study can be conducted to assess the anxiety level among End Stage Renal Disease patients.

Limitations of the Study

- The sample in this study was small and had no control group, hence generalization was not possible.
- Study results were confined only to selected Hospitals in Hyderabad among patients undergoing Dialysis which possibly would decrease the credibility of the study.

Conclusion

On the basis of study results, it is concluded that Renal Disease and its ensuring treatments negatively affect the patients' quality of life. Music Therapy has the potential to be a cost effective, safe, non-pharmacological tool for lowering anxiety among Patients undergoing Dialysis.

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Challenges in Organ Transplantation -An Indian Scenario

Neethu Jose

Abstract

Until recently, financial incentive was the prime motivation in transplantation of kidneys from nonrelated living donors in India. Prior to the Human Organ Transplantation Act of 1994, it was legal in all states of India to purchase and merchandise organs, eliminating the opportunity for black markets currently created by the enormous demand for organs. Despite the Transplantation of Human Organ Act passed in Indian Parliament in 1994, cadaver liver and/or kidney transplant are infrequently performed (in a few private hospitals) in our country compared to living donor liver or kidney transplant. The need for performing more cadaver liver and/or kidney transplants in private and public hospitals is obvious. Immediate measures which should be taken to facilitate more cadaver organ transplant both in private and public hospitals are suggested. This article reveals attitudes and beliefs about organ donation in India from the perspectives of the public. Mistrust of the medical profession and concerns about illegal buying and selling of organs were some major issues in organ donation. Additional issues were the need for public education, advertisement, and role models to promote organ donation in India.

Keywords: Organ Donation; Challenges; Public Education; Brain Death; Organ Transplantation.

Introduction

Organ transplantation has achieved a state of preferred therapeutic option for patients with end-stage organ failure, in the western world. Cadaver donors form the largest pool of organs, approaching 95% and 70% in Europe and USA, respectively. However, the predominant limitation to broader application of clinical transplantation is the inadequate number of donor organs available.

In a developing country like ours, slow growth of organ transplantation is due to high costs involved, lack of facilities in government hospitals, non-availability of a suitable donor from the family and lack of well-developed cadaver programme. Since the passage of THO (Transplantation of Human Organ) Act by the Indian parliament in 1994, cadaver organ transplants have been performed so far, with acceptable results. It is estimated that every year, 3500 kidney transplants are being performed in our country, out of which not less than 2% are from cadaver donors with sporadic reports of transplantation of other organs. There is a large pool of cadaver donors available in our country and if this is mobilized, there will not be any need to undertake living organ donation. This alone will stop unethical transplants involving commerce.

Author Affiliation: Assistant Professor, Department of Medical Surgical Nursing, Jubilee Mission College of Nursing, Thrissur, Kerala 680005.

Correspondance: Neethu Jose, Assistant Professor, Department of Medical Surgical Nursing, Jubilee Mission College of Nursing, Thrissur, Kerala 680005.
E-mail: agnesfeb9@gmail.com

Challenges in Organ Transplantation –Indian Scenario [2,7]

Systemic Issues

- In spite of periodic amendments to the Organ Transplant Act in the recent past, there has not been a significant change or increase in the overall donation numbers or to the establishment of a donation system within the country (apart from a few states).
- In the case of living organ donations (from a living donor to a recipient), if the donor is not related to the patient, the transplant needs to be approved by a state-level committee or hospital committee, including government officials. Naturally these requirements lead to delays in the whole process.
- In the case of deceased organ donations, few hospitals declare brain deaths and people are

not in place to counsel families, both of which lead to a poor conversion rate. Brain death as a form of death is not widely understood or recognized by the public. Also there is hesitation on the part of the medical fraternity to certify brain death. This has to change if the organ donation rates have to be increased.

Infrastructural and Skilled Personnel Problems

Few hospitals are equipped in terms of the required personnel (qualified doctors and trained transplant coordinators) and equipment to conduct a successful transplant.

- Ventilators for maintaining brain dead persons are not available everywhere. Limited facilities for transport of donated organs aggravate the situation. Very few specialized private hospitals can boast of standard infrastructure for carrying out a smooth organ transplant process. The situation worsens in case of public hospitals, which account for witnessing majority of such cases.
- Lack of training for intensive-care unit personnel to maintain brain dead person, is also a constraint according to a number of doctors surveyed in our study.
- A big percentage of medical professionals are unaware of the process as a whole and about the idea of brain death since it is not part of their formal education curriculum.

Lack of Awareness, Religious and Other Issues

- Lack of awareness remains one of the leading reasons for such low organ donation rates in India. There are no structured/focused awareness initiatives or drives to help people understand the what, why or how of organ donation. While some NGO's are making efforts, these are at best – drops in the ocean.
- It is a usual refrain that people in India do not sign up for organ donation, but in reality there are hardly any platforms available for 'sign up'. Most people have never been offered this opportunity in their life time. Many don't know where to go even if they are aware and willing.
- Religious beliefs also may be a reason why families do not agree to deceased organ donation. The idea of charity and perceptions about donation varies from one community to another. The religious mindset together with the unpleasant experiences in the health sector faced by people is detrimental to the improvement of the organ transplant scenario in India.
- An assurance about the system that these organs will be utilized for good and not be a commoditized in the organ market may encourage organ pledges. The idea of a commodity and charity are viewed as distinct and the donor/donors family would not want their charity to be a monetary gain for someone else.

Lack of a Centralized Registry for Organ Donation Unlike Other Countries

India does not have any centralized system in place to enable/assist donors or medical institutions. There is no centralized list of potential recipients being available to different hospitals so that organs could reach the right people in time. Apart from a few states, there is no sharing protocol in place in the rest of India. This leads to unethical and unhealthy practices. Further, it leads to wastage of organs which is a shame when a family has taken this courageous decision to donate.

Expectation of the Possibility of Organ Rejection

Certain studies reveal that technically there is always a possibility that the patient might face a rejection, wherein the body fights off the newly implanted organ even if the surgery goes well. Rejection is harmful to transplant success because the body fights off the new organ as if it were a virus or bacteria akin to any other harmful foreign invader. The immune system makes proteins called anti-bodies that go to the transplanted organ and try to kill it.

In order to hold back the antibodies that threaten the new organ, transplant patients have to take powerful additional immunosuppressant drugs to keep the level of antibodies down, low enough to allow for the organ to integrate into the body.

In India where health services are seemingly expensive for the average person, the ability to afford a transplant operation is beyond the common man's means, especially at a private hospital. The added risk that the organ may not benefit the patient is a negative add-on. Therefore, a majority of patient and patient parties back out due to the uncertainty quotient clubbed with the amount of financial drain out it leads to. This is also in certain ways connected to the fact that health insurance in India still does not have a good enough reach. Most people are not even aware of how they could arrange funds. Cumulatively, it leads to discouragements in a number of ways.

Organ Wastage in India

Medical Science has made tremendous progress in recent times in the field of transplant surgeries and operations, with organ donation from one person after brain death capable of saving up to 9 lives and improving the lives of many others.

However, due to the prevalence of myths surrounding brain death and the lack of awareness in India, majority of people do not take up this noble cause for the benefit of others.

According to medical practitioners, kidney, a part of the lung, a part of the liver, blood and bone marrow can easily be transplanted while the person is alive. But in deceased organ donations (after brain death), more organs and tissues such as the heart, pancreas and cornea can be transplanted if the patient is on the ventilator till the organs are extracted.

Following Statistics are Alarming in the Indian Context [8]

- The total number of brain deaths due to accidents is nearly 1.5 lakhs annually. Other causes of brain death such as sub-arachnoids' hemorrhage and brain tumors would potentially add more numbers.
- There is a need of 2 lakh kidneys, 50,000 hearts and 50,000 livers for transplantation every year. Even if 5-10% of all brain deaths are harvested properly for organ donation, technically there would be no requirement for a living person to donate organs.
- One person dies of kidney failure every 5 minutes. This amount to roughly 290 deaths every day due to kidney failure. These numbers suggest that with adequate systems in place, people succumbing to accident-prone injuries could meet a major portion of the demand.

In light of the number of brain deaths that probably take place every year; the number of donations in comparison are abysmally low. This is because most brain death cases go unrecognized and therefore uncertified. This wastage could be prevented by mandating certification of brain death. In addition, hospitals need to have well-trained personnel who can effectively identify, certify and maintain brain dead patients for organ retrieval to take place. Trained transplant coordinators are an absolute must to counsel families in grief and help them to think about organ donation to save other peoples' lives.

The situation of organ wastage is the most severe in case of hearts. In a recent study[1] conducted in January 2013, it was found that only 17% of hearts received were used by surgeons in the state of Tamil Nadu in 2012, according to Tamil Nadu organ transplant registry Convener Dr. J. Amalorpavanathan. The registry received organs from 306 brain dead patients and allotted them to different hospitals based on a waiting list. While 280 livers and 563 kidneys were retrieved for transplant, only 52 hearts and 13 lungs were harvested. The reason for the same was poor coordination among transplant surgeons causing delay in retrieval.

Government Bodies Involved in Organ Donation and Transplantation Policies

According to the Indian law, Organ Transplantation is a State subject and is under the direct control of the respective State Governments. However, the Union Health Ministry is responsible for making amendments to the Transplantation of Human Organs Act, so that the organ transplantation system in the country runs effectively.

Central Government

In case of the Central Government, the Ministry of Health and Family Welfare is the body looking at decisions related to the organ transplantation processes in the country. The Ministry comprises of four departments, each headed by a Secretary, out of which the Department of Health & Family Welfare is responsible for taking actions related to organ donation and transplantation. In addition, there is the Directorate General of Health Services (DGHS) which is the attached office of DH&FW. It renders technical advice on all medical and public health matters and is involved in implementation of various health services. The ministry as reported has been contemplating on measures such as 50% discount on second class railway tickets, provision of lifelong free medical test and care in the hospital where the organ has been donated.

Role of Non-Government Organizations & Other Groups [2]

MOHAN Foundation

MOHAN (Multi Organ Harvesting Aid Network) is one of the front-running NGOs promoting and taking up the cause of organ donation in India, especially in the case of deceased donors. The organization believes that the shortage of organs can be overcome if the plans are executed properly.

MOHAN foundation has taken up state-by-state implementation of the organ transplant awareness

initiatives, starting with the southern parts of the country. The organization has had significant success because of the wide-scale awareness created by the organization. They were responsible for distribution of donor cards and MOHAN foundation has sent its recommendations to both the central and the state governments. These recommendations are as follows:

1. Making it compulsory for the hospital staff to ask for organs in case of brain death.
2. Provide an Organ donation clause in the driver's license cards.
3. Conducting Post-Mortem Examination during the same time as Organ Retrieval Surgery to avoid unnecessary delays.
4. To reduce the hassle of transporting the donors from hospitals where organs can be retrieved to hospitals where they can be transplanted.
5. Making it compulsory to appoint Transplant Coordinators in the ICUs of hospitals.

AORTA (Armed Forces Organ Retrieval and Transplantation Authority)

AORTA or the Armed Forces Organ Retrieval and Transplantation Authority have been actively pursuing the cause of Organ Donation, Retrieval and Transplantation in the country. They had organized an extensive drive to promote deceased organ donation in India. During the drive, information was disseminated on brain death and organ donation through various lectures, posters, billboards and extensive coverage via local and national newspapers and periodicals in the country. Some of the steps taken up by AORTA are as follows:

1. Establishing organ donor registry at the hospitals
2. Issuing donor cards to the individuals to help them pledge organs in case of brain death
3. Conducting organ pledging ceremonies involving prominent personalities (including movie stars and athletes)
4. Honoring families of organ donors to spread the message of organ donation

Many Firsts have been Achieved through the Initiatives Taken by AORTA

1. For the first time in India, a liver was flown from New Delhi in the north to Hyderabad in the south and transplanted, thereby diminishing geographical boundaries with regards to organ transplantation.
2. Kidneys were transported by air from New Delhi to Mumbai, Pune, Lucknow and Bangalore.

   AORTA argued that the previously held concerns about social and religious beliefs as a cause for lack of organ donation in India were found to be untrue contrary to what the existing argument is.
3. ORBO (Organ Retrieval Banking Organization) by AIIMS

ORBO has been setup by the All India Institute of Medical Sciences (AIIMS) Delhi with the purpose of encouraging organ donations across the country. It aims to achieve fair and equitable distribution and utilization of organs. ORBO is concerned with the following primary activities:

a. Maintaining donor registration
b. Coordination from procurement of organs to transplantation
c. Dissemination of information to all the concerned hospitals in the network
d. Creating awareness about organ donation and transplantation
e. Organizing promotional activities directed towards helping the cause of organ donation

ORBO has established a network of 20 hospitals (8 Government and 12 Private) in the NCR(National Capital Region) region and is now moving towards expansion of the same, with both national and international groups on the agenda. Each of the participating hospitals has the infrastructural support from ORBO. An officer from the hospital is also nominated as a nodal officer to coordinate with ORBO.

Recommendations – Future Strategy & Action Plan [1,3]

Large-Scale Awareness Building

It is only through awareness programmes that the number of deceased donations can be increased. What is needed is a large scale campaign which only the government can undertake or fund. Clear messaging by the government will also add credibility to the cause. In fact all messaging in public places and hospitals in the form of standees, video spots etc. have to have the government logo along with that hospital in order to increase people's trust.

Large-scale advertising campaigns should aim to educate people about benefits of organ donation, clearing all prevalent myths and misconceptions. The concept of brain death needs to be adequately dealt with so that organs of the deceased which can be retrieved and utilized and do not go waste.

Positive Messaging on Organ Donation Can Be Done Using The Following Mediums

- Advertising campaigns across all media (TV, Print, Radio, In-cinema ads)
- Social Media
- Celebrity endorsements
- Theater & Street Plays Events to promote organ donation (Marathons, Concerts etc.)
- On-ground awareness drives at Schools, Colleges, Corporate offices, Clubs etc.

Setting Up of A National Registry and A Centrally Managed Organ Donor-Recipient Network

A central organ sharing registry or a recipient registry is an absolute must, so that donated organs can be shared in a fair and transparent manner. This has already been initiated in the Transplantation of Human Organs Act, which has made a provision for the same. However there is no such system yet. Apart from a few states, there are no sharing protocols in place. This leads to unethical and unhealthy practices. Further, it leads to wastage of organs which is a shame when a family has taken a courageous decision to donate. The sharing of cost between hospitals also has to be clearly defined.

This system however will not work in the current scenario with seemingly unhealthy and negative attitudes amongst the various stakeholders. There needs to be a spirit of cooperation, sharing and the willingness to adopt from successful practices in other parts of the country. The concerned agencies would be recommended to look into the practices and policy measures undertaken by the states such as Tamil Nadu and Maharashtra. This could enable them to build a model that could be implemented in other parts of the country as well.

Make Brain Death Declaration Mandatory

Making the declaration of brain death mandatory will increase instances of organ donation. It will help facilitate a discussion between the doctor/physicians and the relatives about brain death and organ donations. It would help Transplant Coordinators and personnel from other Departments to intervene and convince the relatives about organ donation.

Recognizing the Pivotal Role of the Transplant Coordinator in the Organ Donation/Transplant Process

It is imperative to understand and acknowledge the pivotal role that the Transplant coordinator plays in the entire process of organ donation and transplantation. It is only when that the hospital is able to establish a personal rapport with the patient and the patient's relatives, can they create a precondition necessary to establish talk regarding organ donation later on. The role of the Transplant Coordinator is to reach out to potential donor families and explain to them the need and importance of the act of donation. His/her task would be to facilitate and enable the retrieval of the organ from the deceased patient's body in a smooth and quick manner so the organ does not go waste.

An increased number of Transplant Coordinators would help in creating awareness and also help in counseling the relatives to manage the system of organ donation. Higher numbers of Transplant Coordinators are required in a public set-up as the amount of patients there are significantly higher.

Improve Infrastructure within Public Hospitals for Transplantation

Transplantation as a service should be readily available in all Government hospitals as the majority of patients go there for treatment and many cannot afford treatment at private hospitals. The Government also needs to take the necessary steps to improve the infrastructural set-up at all public hospitals to store/transport organs and train the hospital staff/personnel for organ transplantation procedures and on the subject of brain death, and how to increase awareness regarding the same.

Non-Transplant Hospitals Need to Be Involved in Organ Retrieval

These medical centers (which have ICU's but are not transplant centers) are crucial because a lot of accident victims are brought here for treatment. They should be geared up for brain death declaration. They need to be given an incentive to be participants in organ retrieval, and a system has to be worked out wherein they are compensated adequately for their active involvement in the Organ Donation programme.

The government will have to provide all the facilities (or monetary incentives) to ensure that brain deaths are identified in these hospitals and organs retrieved.

Sensitizing Police Personnel and Forensic Experts

Sensitization of police personnel and the forensic experts has to be taken up on a war footing to make all medico-legal cases smooth. Most brain death cases are accident cases and therefore medico legal cases.

They usually are difficult to handle as they do not get cooperation from these quarters. We can recognize and highlight some police people who have been cooperative.

Provision of More Opportunities for Donor Pledges

Provide the public with organ donor intent forms and brochures while issuing driving licenses, Aadhar cards and college ID cards, so they can choose to express their intent on the cards.

Emulate Successful Practices from Other States

States such as Tamil Nadu for instance have recorded an 80% conversion rate when it comes to donating the organs of one kin. Through a motivated network of doctors who declare brain death, personnel who maintain the deceased on life support, and transplant coordinators who convince the near relatives of the patient, the state has a record organ donation which is 15 times the national average. An important step in this direction was the creation of a network of hospitals for sharing organs.

The Maharashtra government made it compulsory for all non-transplant hospitals equipped with an ICU and operation theatre to retrieve organs for harvesting and made it mandatory for them to officially identify brain dead patients.

Recent Initiatives for Creating Awareness about Organ Donation in India

Promotion and Awareness by Famous Personalities/ Ambassadors

- Actress and Former Miss World Aishwarya Rai Bachchan has promoted eye donation for a long time through various channels including print media, television advertisements and through events organized by the medical fraternity.
- Actors Aamir Khan and his wife Kiran Rao have pledged to donate his organs. Priyanka Chopra has also pledged to donate her organs.
- Sports celebrities like Kapil Dev and Gautam Gambhir have also pledged their organs.

Considering the fact that public figures have the potential to attract media coverage, social causes when promoted by celebrities have proven to have greater reach than a regular event. The personalities themselves hold immense brand value and the cause he/she upholds also becomes an attribute of their overall value.

Student/College Initiatives towards Creating Awareness

- More than 1,500 students of Shivaji College, Delhi University, organized a walk around their campus in early September, 2013, creating awareness about importance of organ donation by holding placards and banners[3].
- Faculty members of BMS department of Western College in Mumbai set an example for the students by donating their organs and initiating the same leading to 150 students coming forward for the cause in August, 2013[4].

Increasing involvement of National Media in awareness campaigns Times of India ran a campaign on organ donation, garnering more than 50,000 organ donation pledges in August, 2013. This included 1,000 CRPF Jawans, a large number of students and elderly people[5].

Pledging Donation through Driving Licenses

The Road Transport and Highways Ministry[6] is formulating a norm to include the provision of pledging organs through application forms used for obtaining a driver's license. This drive has already been implemented in cities like Bangalore, Mumbai and Pune; and other cities will follow soon.

The success of the program can be judged by the fact that organ donation pledging went up by 40 times in the first ten months of its launch in the pilot cities, thereby accomplishing the dual goals of creating awareness and increasing the number of potential organ donations. This initiative has now been taken up by the Central Road Transport and Highways Ministry for implementation across the country.

Conclusion

In recent years, transplantation has assumed an important role in the treatment of patients with end-stage organ failure. With the passage of Transplantation of Human Organ Act by the Indian parliament, transplantation of organs from brain dead donors has become a reality. Although there are many issues in success of cadaver programme, the following measures can help in solving non-medical problems in organ transplantation in India:

1. Reducing the shortage of organs by promoting deceased organ donation with presumed consent and by educating the public.
2. Reducing the problem of finances by bringing in insurance, roping in philanthropists, getting some government help and requesting

pharmaceutical companies to reduce the cost of medicines.

3. Strict policing for illegal transplants and punishment of all the persons involved. It is time that the medical fraternity took a strong stand on this issue and started promoting the concepts of brain death and deceased organ donation

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Medication Errors: Don't Let Them Happen To You

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Neethu Jose

Abstract

Advancements in human healthcare are on an all time high. The treatment system is becoming hi-tech and sophisticated and vulnerable to errors at the same time. Various disasters have occurred due to medication errors at different levels of healthcare delivery. Ongoing quality improvement programs for monitoring medication errors are needed. Medication errors should be identified and documented and their causes studied in order to develop systems that minimize recurrence. Patient education and participation in their own healthcare decisions should be encouraged. Thus, it is the need of the hour to give a wake-up call and all those concerned should join hands to solve this gigantic problem. However, if a little bit of extra caution is observed by the various stakeholders these can be prevented largely.

Keywords: Medication Errors; Healthcare Delivery; Malpractice Litigation; Word Error; Failure in Communication.

Mistakes can occur in any setting, at any step of the drug administration continuum. Here's how to prevent them.

Introduction

Medication administration is a complex multistep process that encompasses prescribing, transcribing, dispensing, and administering drugs and monitoring patient response. An error can happen at any step. Although many errors arise at the prescribing stage, some are intercepted by pharmacists, nurses, or other staff.

Administration errors account for 26% to 32% of total medication errors—and nurses administer most medications. Unfortunately, most administration errors aren't intercepted. Recent technological advances have focused on reducing errors during administration

Ten Key Elements of Medication Use [1,2]

Many factors can lead to medication errors. The Institute for Safe Medication Practices (ISMP) has identified 10 key elements with the greatest influence on medication use, noting that weaknesses in these can lead to medication errors. They are:

- Patient information
- Drug information
- Adequate communication
- Drug packaging, labeling, and nomenclature
- Medication storage, stock, standardization, and distribution
- Drug device acquisition, use, and monitoring
- Environmental factors
- Staff education and competency
- Patient education
- Quality processes and risk management.

Patient Information

Accurate demographic information (the "right patient") is the first of the "five rights" of medication administration. Required patient information includes name, age, birth date, weight, allergies, diagnosis, current lab results, and vital signs. Barcode scanning [4] of the patient's armband to confirm identity can reduce medication errors related to patient information. But initially, barcode technology increases medication administration times, which may lead nursing staff to use potentially dangerous "workarounds" that bypass this safety system. Also, the barcode method isn't fail proof;

Author Affiliation: Assistant Professor, Department of Medical Surgical Nursing, Jubilee Mission College of Nursing, Thrissur, Kerala 680005.

Correspondance: Neethu Jose, Assistant Professor, Department of Medical Surgical Nursing, Jubilee Mission College of Nursing, Thrissur, Kerala 680005.
E-mail: agnesfeb9@gmail.com

the patient's armband may be missing or may fail to scan, or the scanner's battery may fail.

Drug Information

Accurate and current drug information must be readily available to all caregivers. This information can come from protocols, text references, order sets, computerized drug information systems, medication administration records, and patient profiles.

Adequate Communication

Many medication errors stem from miscommunication among physicians, pharmacists, and nurses. Communication barriers should be eliminated and drug information should always be verified. One way to promote effective communication among team members is to use the "SBAR" method (situation, background, assessment, and recommendations). Poor communication accounts for more than 60% of the root causes of sentinel events reported to the Joint Commission (JC).

A case for example, a patient died after labetalol, hydralazine, and extended-release nifedipine were crushed and given by NG tube. (Crushing extended-release medications allows immediate absorption of the entire dosage.) As a result, the patient experienced profound bradycardia and hypotension leading to cardiac arrest. Although she was successfully resuscitated, she received the drugs the same way the next day. Clinicians had failed to communicate to other team members that her initial cardiac arrest had occurred shortly after she'd received the medications improperly.

Drug Packaging, Labeling, and Nomenclature

Healthcare organizations should ensure that all medications are provided in clearly labeled unit-dose packages for institutional use. Packaging for many drugs looks similar. A tragic case stemming from such similarity occurred with heparin (one of the drugs on the JC's "high-alert" list, meaning it has a high potential for causing patient harm). A few years ago, several pediatric patients received massive heparin overdoses due to misleading packaging and labeling; three infants died. As a result, the Food and Drug Administration and Baxter Healthcare (the heparin manufacturer) issued a letter via the MedWatch program alerting clinicians to the danger posed by similarly packaged drugs. Baxter has since enhanced the labels on heparin and some other high-alert drugs; it now uses a 20% larger font size, tear-off cautionary labels, and different colors to distinguish differing drug dosages.

Look-alike or sound-alike medications—products that can be confused because their names look alike or sound alike—also are a source of errors. The JC requires healthcare institutions to identify look-alike and sound-alike drugs each year and have a process in place to help ensure related errors don't occur.

Medication Storage, Stock, Standardization, and Distribution

Many experienced nurses remember when critical care units kept a medication "stash," which frequently caused duplication errors. Potentially, many errors could be prevented by decreasing availability of floor-stock medications, restricting access to high-alert drugs, and distributing new medications from the pharmacy in a timely manner. Also, hospitals can use commercially available products to decrease the need for I.V. compounding medications and I.V. admixing. Use of preprinted order sets and standardized formularies can reduce errors, too.

The Institute for Healthcare Improvement recommends standardized order sets and preprinted protocols for 75% of the drugs healthcare facilities use. These orders and protocols help clinicians promptly select correct dosing regimens, routes, and parameters while eliminating ambiguous abbreviations and the risk of misreading a prescriber's handwriting. However, errors can occur even when automated dispensing cabinets are stocked by technicians. Errors can happen when a technician filled an automated dispensing cabinet with the wrong concentration such as premixed potassium chloride I.V. solution.

Drug Device Acquisition, Use, and Monitoring

Improper acquisition, use, and monitoring of drug delivery devices may lead to medication errors. Some delivery systems have inherent flaws that increase the error risk. For example, at one time, I.V. medication tubing continued to flow or infuse when removed from the pump. Thus, patients could receive boluses of medications or I.V. solutions, which sometimes had deleterious outcomes. During the admission process, for instance, a patient receiving nitroprusside could receive a large infusion of this drug when the I.V. tubing was removed from the pump and the patient was transferred from one bed to another. This design flaw has since been resolved. In addition, syringes for administering oral medications should not be compatible with I.V. tubing.

Environmental Factors

Environmental factors that can promote medication errors include inadequate lighting, cluttered work environments, increased patient acuity, distractions during drug preparation or administration, and caregiver fatigue (The fatigue factor). Distractions and interruptions can disrupt the clinician's focus, leading to serious mistakes. Heavier workloads also are associated with medication errors. The nursing shortage has increased workloads by increasing the number of patients for which a nurse is responsible. Also, nurses perform many tasks that take them away from the patient's bedside, such as answering the telephone, cleaning patients' rooms, and delivering meal trays. Absence of nurses from the bedside is directly linked to compromised patient care.

Staff Education and Competency

Continuing education of the nursing staff can help reduce medication errors. Medications that are new to the facility should receive high teaching priority. Staff should receive updates on both internal and external medication errors, as an error that has occurred at one facility is likely to occur at another. As medication-related policies, procedures, and protocols are updated, this information should be made readily available to staff members. Also, nurses can attend pharmacy grand rounds. Some facilities now use nursing grand rounds as a way to keep staff members competent.

Patient Education

Caregivers should teach patients, the name of each medication they're taking, how to take it, the dosage, potential adverse effects and interactions, what it looks like, and what it's being used to treat.

Quality Processes and Risk Management

A final strategy for reducing medication errors is to establish adequate quality processes and risk management strategies. Every facility should have a culture of safety that encourages discussion of medication errors and near-misses (errors that don't reach a patient) in a non punitive fashion. Only then can effective systems-based solutions be identified and used. Simple redundancies, such as using an independent double-check system when giving high-alert drugs, can catch and correct errors before they reach patients. According to the Institute of Medicine, organizations with a strong culture of safety are those that encourage all employees to stay vigilant for unusual events or processes.

The Fatigue Factor [3][3]

Recent research high lights the role of care giver fatigue in medication errors. Nurses who responded to a 2008 medication safety survey reported that fatigue, stress, and under staffing increased the risk of making a medication error. Fatigue and sleep deprivation are linked to decreases in vigilance, memory, information processing, reaction time, and decision making. A person who works about12-hour shift and has a long commute may need to stay awake for up to 18 consecutive hours. According to U.S. Army studies, staying awake for 17 hours is equivalent to a blood alcohol level of 0.05%; staying awake for 24 hours equates to a blood alcohol level of 0.10%.

Nurses who work a16 hour shift may be awake for up to 19 or 20 hours, especially if they have a long commute. Loss of even one night's sleep can lead to short-term memory deficits and omission errors and giving the wrong drug are common medication errors. Fatigue and sleep loss also may diminish a nurse's ability to recognize subtle patient changes. As a result, the nurse may not notice an adverse reaction to a drug quickly enough to avoid a devastating outcome.

Near-Misses

Suppose a physician writes an order on the wrong chart, but you catch the error before the patient is harmed. A 2006 study found 350 such near-misses were reported, with drug administration implicated in 28.2%. Due to decreased vigilance and reduced information-processing ability, a severely fatigued nurse may not notice a potential problem that could make the difference between a near-miss and a medication error. Near-miss medication error reporting can be used to reduce medication errors. Failure to recognize and report near-misses impedes efforts to improve medication safety.

Inattentional "Blindness"

Another case of a fatigue-related error involved misreading of drug labels. A nurse nearing the end of a 16-hour shift reached into the medication supply cabinet to obtain furosemide I.V. She thought she was grabbing a furosemide vial, but picked up a vial of potassium chloride instead. The vial was correctly labeled, and the nurse even read the label before administering the drug (which caused a fatal arrhythmia). The furosemide and potassium chloride

labels had similar colors and printing. The nurse was expecting to see "furosemide" on the label, so her brain processed what she expected to see. Such inattentional "blindness" occurs when the brain fails to distinguish something that should be easy to discern. To prevent information over load, the brain "searches and sweeps" until something grabs its attention. It's adept at filling in gaps when information is missing, compiling a comprehensive picture based on incomplete information. Thus, the nurse saw what she expected to see.

Consequences for the Nurse [5]

For a nurse who makes a medication error, consequences may include disciplinary action by the state board of nursing, job dismissal, mental anguish, and possible civil or criminal charges. In one study of fatal medication errors made by healthcare providers, the providers reported they felt immobilized, nervous, fearful, guilty, and anxious. Many experienced insomnia and loss of self-confidence.

How to Avoid Medication Errors? [1,3,5]

How can you safeguard your practice from medication errors? For starters, be conscientious about performing the "five rights" of medication administration every time— right patient (using two identifiers), right drug, right dosage, right time, and right route. Some experts have expanded this list to include:

- Right reason for the drug
- Right documentation
- Right to refuse medication
- Right evaluation and monitoring.
- Right to know about the medication

Be sure to use the safety resources available at your facility. Don't use workarounds to bypass safety systems. In a 2008 study, one-third of nurses reported they sometimes bypass safety systems. Nurses working in critical care and pediatrics were more likely to do this; yet medication errors in these settings can be particularly devastating. Where nurses routinely bypass safety systems and create workarounds, the employer must conduct a root-cause analysis to identify the reason for the workaround, and take action to correct the situation and prevent recurrences.

Additional Steps you can Take to Promote Safe Medication use Include

- Reading back and verifying medication orders given verbally or over the phone.
- Asking a colleague to double check your medications when giving high-alert drugs
- Using an oral syringe to administer oral or NG medications
- Assessing patients for drug allergies before giving new medications
- Becoming familiar with your facility's "do not use" list of abbreviations.

In 2004, the JC (Joint Commission) published a list of abbreviations that shouldn't be used because they can contribute to medication errors. For instance, in one documented case, a "naked" decimal point (one without a leading zero) led to a fatal tenfold overdose of morphine in a 9 month old infant. The dosage was written as ".5 mg" and interpreted as "5 mg."

Reading Back Medication Orders

The Joint Commission recommends care givers read back and verify all medication orders given verbally or over the telephone. Keep these tips in mind:

- ✓ Have the patient's chart available when calling the prescriber, and write down the order while you're still on the phone.
- ✓ Verify the patient's name.
- ✓ Read back and confirm the medication. If you're unfamiliar with the drug, ask the prescriber to spell the drug name.
- ✓ Confirm the medication dosage by stating each number individually.
- ✓ To help prevent sound-a like errors, verify with the prescriber the condition that the medication is being used to treat. For example, Actos is used for diabetes mellitus, where as the similar-sounding Actonel Is used to treat osteoporosis.

Eliminating Medication Errors

Avoiding medication errors requires vigilance and the use of appropriate technology to help ensure proper procedures are followed. Computerized physician order entry reduces errors by identifying and alerting physicians to patient allergies or drug interactions, eliminating poorly handwritten prescriptions, and giving decision support regarding standardized dosing regimens.

Conclusion

Medicines cure, but they can also kill or cause severe adverse reactions if a wrong medicine is

administered or if the dosage is wrong. Many disasters have occurred due to the medication errors. Errors occur at all levels of the medication use system, from prescriber to the consumer through many intermediate levels. These errors are not usually due to incompetence but due to mostly preventable reasons. Be sure to use the safety practices already in place in your facility. Eliminate distractions while preparing and administering medications. Learn as much as you can about the medications you administer and ways to avoid mistakes. Finally, be aware of the role fatigue can play in medication errors.

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Nurses Role: A Vital Part in Operation Theatre

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Vasantha Kalyani*, S.K. Mohana Sundari**

Abstract

Nurses responsibility is the vital part in health services which has the two major disciplines as medical and surgical. On the account of surgery nurses play a crictal and important role in maintain the quality of nursing care. The nursing care depends in the OT as the need of patients such as either diagnostic purpose or treatment with the standard safety measures in the prevention of infection .

Keywords: Nurses Role; Operation Theatre; Role of Nurse; Infection Control; Duties of Nurse.

Introduction

Nurses play an important role in maintaining the health and well-being of patients. One type of nurse in particular is the perioperative nurse, which is commonly referred to as the operating room nurse. They are registered nurses who take care of patients before, after and during surgery. OT nurse is responsible to the Medical Coordinator, who is in charge of the management and organisation of patient care.

Charge nurses are experienced registered nurses who have displayed leadership, management and communication skills. They are responsible for managing, supervising and assisting the nursing staff, providing administrative support and patient care. A hospital, clinic or health care facility may have several charge nurses, each responsible for a different shift, department or specialized unit.

OT in charge nurse is acting as a coordinator and their main goal is to provide, safe, and effective care of surgical patients. The charge nurse is integrally involved in insuring that staff, patients, and equipment come together seamlessly to move patients through the surgical process. It essential to understanding operating room coordination is an examination of the communication of the OR charge nurse. Communication provides a basis for judgements that are supported by a social network of nurses, surgeons, anaesthesiologists, technicians, and auxiliary staff. The OR charge nurse then becomes a conduit for information flow, receiving, processing, and communicating this information to others for the coordination of patient care. The purpose of OR charge nurse communication is to coordinate the activities of the operating room. Coordination of staffing is usually face-to-face and with OR nurses.

Duties and Responsibilities of OT Charge Nurse

All emergency personnel are expected to know and follow the hospital admissions criteria, guide lines, protocols, and the diagnosis and treatment standards in use in the Centre, and to ensure the

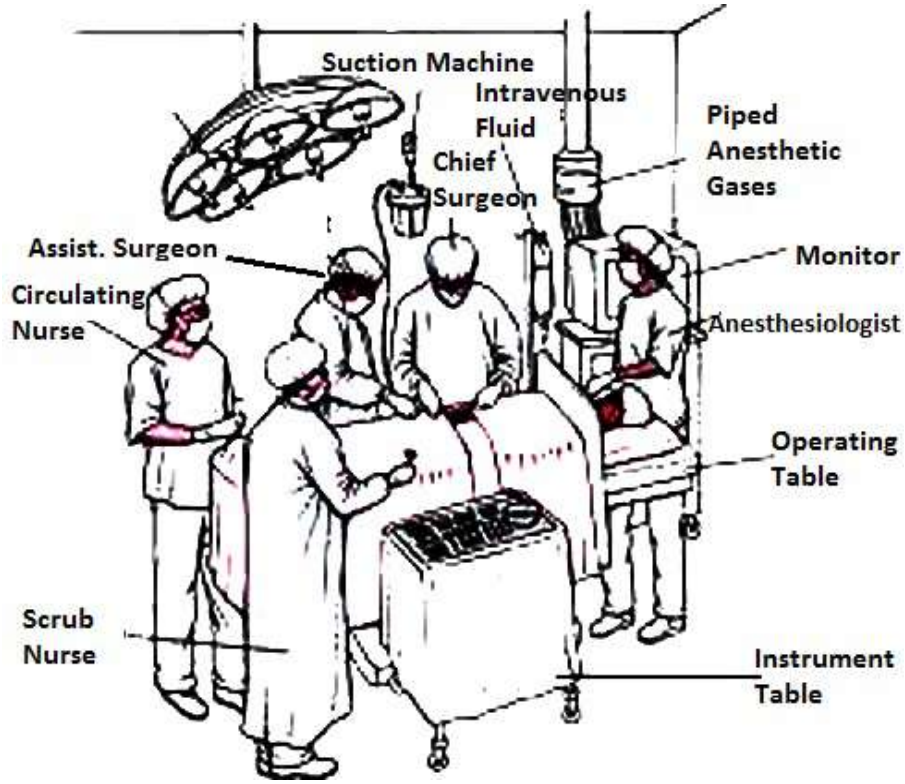
Author Affiliation: *Assist Professor, **Nursing Tutor, College of Nursing, AIIMS, Rishikesh.

Correspondance: Vasantha Kalyani, Assist Professor, College of Nursing, AIIMS, Virbhadra Road, Rishikesh, Uttarakhand 249201
E-mail: vasantharaj2003@gmail.com

correct compilation of clinical records and statistics in both computer and paper formats.

The Main Duties and Responsibilities of the OT in Charge is

1. Management and supervision of sterilisation services;
2. Preparation of the theatre for operations and organisation of the work of the national team in theatre;
3. Direct participation in surgical procedures;
4. To assist with clinical research and record keeping as required by the scientific programmes of the specialist sector of the Medical Division of emergency.



The Areas in which OT Charge Nurse may be Required to work are:

- Sterilisation
- Operating theatres
- Training programmes
- Administrative duties

The workload and rota are variable, depending on the needs and organisational set-up of the hospital; usually have at least one day off a week, with on-call 24/7 in case of surgical emergency..

Sterilisation Services

Each Centre is equipped to carry out the following procedures:

- Steam sterilisation via autoclave, including very basic models;
- Chemical sterilisation using formaldehyde, glutaraldehyde...;
- Quality control of the sterilisation processes in use, via the appropriate tests (Bowie-Dick, biological and chemical tests).

Management and Orders of Stocks and Supplies

The OT in charge is responsible for checking that levels of supplies of materials and equipment are always adequate in terms of quantity and quality, and for informing the Medical Coordinator of any requirements.

Management and Training of Local Personnel

Clinical activities and patient care are always carried out alongside and in collaboration with local personnel, who thus benefit from training in the field. There is also provision for more specific teaching

activities, managed by the international specialists, in accordance with the individual needs of each hospital. As there is a high turnover of nursing staff, there will be a particular need to provide training to these personnel.

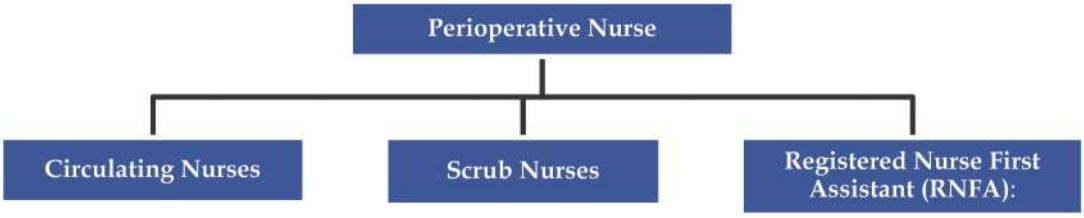
Administrative Duties and Responsibilities

In charge nurses perform administrative duties including creating schedules, maintaining adequate supplies and informing staff of changes to protocol.

Staff Appraisal

In charge nurses document the performance of nurses, perform evaluations and counsel nurses on unsatisfactory performance. In addition, they meet with upper management to discuss personnel and administrative issues and address and solve problems among staff.

Roles and Responsibilities of Perioperative Nurse



A perioperative nurse is a registered nurse who, using the nursing process, develops a nursing care plan, and coordinates and delivers care to patients undergoing operative or other invasive procedures." Perioperative nurses work closely with surgeons, anaesthesiologists, nurse anaesthetists, surgeon's assistants, surgical technologists, and nurse practitioners.

Preoperative nurses assume many roles within the operating room that involve both sterile and unsterile activities. Perioperative nurses can be divided into three main groups according to their roles and responsibilities within the operating room. The three main groups are circulating nurses, scrub nurses, and registered nurse first assistants.

Circulating Nurses

In the operating room, circulating nurses remain in the unsterile field .These nurses are not scrubbed, and do not wear gloves or a gown. Their role is to monitor and document the procedures taken during the operation. Circulating nurses also function to promote the sterility of the operating room. They inform operating room staff of anything that may cause contamination. They are also responsible for opening autoclaved packages, which are packages that hold sterile objects, so that the operating room staff may easily access the sterile equipment.

Scrub Nurses

Scrub nurses remain in the sterile field of the operating room and follow the designated scrub procedure, wear gloves, a mask and gown. Scrub nurses aid surgeons by handing them equipment, sponges and other necessary instruments needed during the operation. They also help the surgeon by monitoring the patient's condition during the procedure.

Registered Nurse First Assistant (RNFA)

RNFA nurses have had additional education and training in surgical care. These nurses have more responsibilities within the operating room and work directly with surgeons. Their job is to help surgeons by controlling patient bleeding, use instruments and medical devices during the operation, perform invasive procedures such as cutting tissue, and suture the patient when the operation has finished.

Practice Settings

Perioperative registered nurses work in a wide array of urban and rural settings, such as:

- Hospital surgical departments
- Ambulatory surgery centres (also known as Day Surgery units)

- Clinics
- Physicians' offices

Education

RN license with a Bachelor's of Science degree in nursing (BSN), associate degree in nursing (ADN), or hospital diploma.

Personal Qualification

Generally, registered nurses obtain general nursing experience before entering the specialty area of Perioperative Nursing. Two areas that can provide applicable experience are critical care and emergency room care. They are fast-paced, sometimes stressful environments where life-saving decisions that make a difference in a patient's life are routinely made.

Perioperative registered nurses must be able to interact well with all kinds of people in difficult situations. They need emotional stability to cope with human suffering and frequent emergencies. They must be able to accept responsibility, provide direction to others, coordinate a patient's health care plan, and collaborate with other health care professionals.

Career Opportunities

Perioperative registered nurses also may work as an O.R. Director, managing budgets, staffing, and other business aspects of the operating room. Some perioperative registered nurses may later consider a career in business as a management consultant, clinical educator, researcher, or medical sales professional.

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[1] Flink H, Tegelberg Å, Thörn M, Lagerlöf F. Effect of oral iron supplementation on unstimulated salivary flow rate: A randomized, double-blind, placebo-controlled trial. J Oral Pathol Med 2006; 35: 540-7.

[2] Twetman S, Axelsson S, Dahlgren H, Holm AK, Källestål C, Lagerlöf F, et al. Caries-preventive effect of fluoride toothpaste: A systematic review. Acta Odontol Scand 2003; 61: 347-55.

Article in supplement or special issue

[3] Fleischer W, Reimer K. Povidone iodine antisepsis. State of the art. Dermatology 1997; 195 Suppl 2: 3-9.

Corporate (collective) author

[4] American Academy of Periodontology. Sonic and ultrasonic scalers in periodontics. J Periodontol 2000; 71: 1792-801.

Unpublished article

[5] Garoushi S, Lassila LV, Tezvergil A, Vallittu PK. Static and fatigue compression test for particulate filler composite resin with fiber-reinforced composite substructure. Dent Mater 2006.

Personal author(s)

[6] Hosmer D, Lemeshow S. Applied logistic regression, 2nd edn. New York: Wiley-Interscience; 2000.

Chapter in book

[7] Nauntofte B, Tenovuo J, Lagerlöf F. Secretion and composition of saliva. In: Fejerskov O, Kidd EAM,

editors. Dental caries: The disease and its clinical management. Oxford: Blackwell Munksgaard; 2003. p. 7-27.

No author given

[8] World Health Organization. Oral health surveys - basic methods, 4th edn. Geneva: World Health Organization; 1997.

Reference from electronic media

[9] National Statistics Online—Trends in suicide by method in England and Wales, 1979-2001. www.statistics.gov.uk/downloads/theme_health/HSQ 20.pdf (accessed Jan 24, 2005): 7-18. Only verified references against the original documents should be cited. Authors are responsible for the accuracy and completeness of their references and for correct text citation. The number of reference should be kept limited to 20 in case of major communications and 10 for short communications.

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