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Indian Journal of Anesthesia and Analgesia	Monthly	7500	7000	586	547
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Indian Journal of Library and Information Science	Triannual	9500	9000	742	703
Indian Journal of Maternal-Fetal & Neonatal Medicine	Semiannual	9500	9000	742	703
Indian Journal of Medical & Health Sciences	Semiannual	7000	6500	547	508
Indian Journal of Obstetrics and Gynecology	Bi-monthly	9500	9000	742	703
Indian Journal of Pathology: Research and Practice	Monthly	12000	11500	938	898
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Indian Journal of Preventive Medicine	Semiannual	7000	6500	547	508
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Indian Journal of Surgical Nursing	Triannual	5500	5000	430	391
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International Journal of Practical Nursing	Triannual	5500	5000	430	391
International Physiology	Triannual	7500	7000	586	547
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Journal of Cardiovascular Medicine and Surgery	Quarterly	10000	9500	781	742
Journal of Forensic Chemistry and Toxicology	Semiannual	9500	9000	742	703
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Journal of Nurse Midwifery and Maternal Health	Triannual	5500	5000	430	391
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Journal of Orthopaedic Education	Triannual	5500	5000	430	391
Journal of Pharmaceutical and Medicinal Chemistry	Semiannual	16500	16000	1289	1250
Journal of Practical Biochemistry and Biophysics	Semiannual	7000	6500	547	508
Journal of Psychiatric Nursing	Triannual	5500	5000	430	391
Journal of Social Welfare and Management	Triannual	7500	7000	586	547
New Indian Journal of Surgery	Bi-monthly	8000	7500	625	586
Ophthalmology and Allied Sciences	Triannual	6000	5500	469	430
Otolaryngology International	Semiannual	5500	5000	430	391
Pediatric Education and Research	Triannual	7500	7000	586	547
Physiotherapy and Occupational Therapy Journal	Quarterly	9000	8500	703	664
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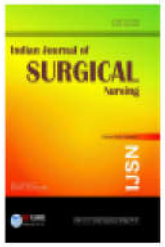

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Triage Awareness among Nursing Students

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Priyanga*, Periannan, S. Sridevy*****

Abstract

Nursing has passed through several decades, improving its theories and technologies with Nightingale's legacy in one hand. But still handling an emergency situation strike fear in the heart of nurses. The triage process was developed to grade patients who need immediate care. The present study was conducted to assess the knowledge regarding triage system among GNM students Pondicherry. The study findings reveal that there was moderately adequate knowledge regarding triage system. Only 11 (11%) of the students had over all adequate knowledge about triage system. Whereas 50 (50%) of students had moderately adequate knowledge and 39 (39%) of the students had in adequate knowledge about triage system. This study also shows that there was significant relationship between the knowledge on triage system with selected demographic variables like age, gender, religion, year of study, previous knowledge.

Keywords: Triage; Emergency; Categorization; Decision making.

Introduction

The nurses who work in the emergency department are vital members of health team. It is very essential that they possess high level of knowledge, skill and clinical experience to provide care to the sick triage. Triage categorization is a very strong predictor of emergency department outcome, and a good predictor of utilization of critical care resources. The nurse must inspire confidence in patient and recognize each as an individual. She has to be emotionally and physically matured and vigilant enough to handle different type of problems in a complex department like a busy emergency department. Triage being an important concept in a clinical practice requires increased autonomy and decision making skill on part of the nurses. The fact given above reveals inadequate knowledge among student nurse related to triage. This has inspired the researcher to undertake the study.

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Statement of the Problem

"A Study to assess the knowledge regarding triage system among GNM students of selected Colleges of Nursing, Puducherry."

Objectives

- To assess the level of knowledge regarding triage among nursing students.
- To find out the association between the level of knowledge regarding triage system and selected socio demographic variables.

Methodology

The investigator adopted a quantitative approach to assess the knowledge regarding triage system among GNM students.

The research design selected for this study is descriptive design.

Sample Size includes 100 GNM students studying in selected nursing colleges of Puducherry.

The Sampling Technique used was the convenient sampling technique.

Following the receipt of a formal written permission from the Principals of the selected colleges, the nursing students were informed of the purpose of the study and requested to co operate for the study.

The time schedule for collecting data was planned from 2-4 pm. 100 students were selected by convenient sampling. The questionnaire consisting of items related to knowledge regarding the principles and concepts of triage was collected after the completion. After collecting the completed tool the correct responses were discussed according to the student's interest and doubts were clarified, then giving thanks to the respondents.

Among the 100 GNM students, 89 (89%) students belong to the age group of 17-18 years. 11 (11%) students belong to the age group of 18-19 years. No one belongs to the age group of 19-20 & 20-21 years. Among them 10 (10%) students are boys. And 90 (90%) students are girls. In which majority 88 (88%) students were Hindus, 10 (10%) students were Christians, and the remaining 2 (2%) students were Muslims.

Regarding their year of study first year students were 50 (50%) and second year students constituted 50 (50%). Based on their level of previous knowledge on triage, majority of students had previous knowledge about 85 (85%). only 15 (15%) students were not having previous knowledge about triage.

The diagram below shows the overall knowledge of the study participants regarding triage that 11% students have adequate knowledge and 50% of students have moderate knowledge and 39% students have inadequate knowledge.

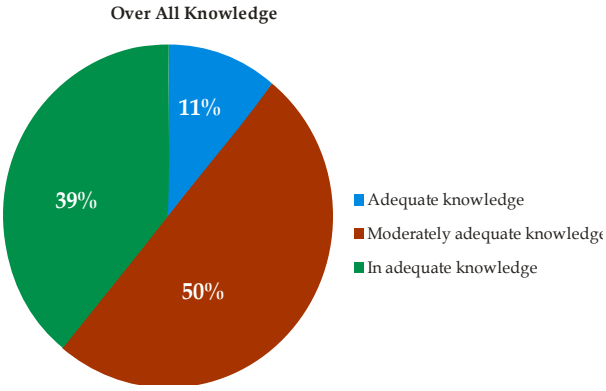

Fig. 1:

Implications

Active participation of the students and the student nurses can be encouraged by providing in- service education, continuous nursing education programme, teaching and demonstration on the management of triage in order to reduce morbidity and mortality rate and also encourage the efficiency of nurse.

The present study insists upon the need for the improvement in knowledge of triage among students would help in future career. The finding emphasizes the need for implementing structured educational strategies for improving the knowledge level of students regarding triage.

Recommendations

On the basis of study that had been conducted, certain recommendations are suggested for future study.

1. A similar study can be done on a large scale for better generalization.
2. A comparative study can be done with student nurse studying in two different colleges.
3. An exploratory study may be conducted to identify the awareness, knowledge and attitude of health personnel regarding triage.

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Knowledge, Attitude and Practice of Hospital Infection Control and Prevention among Nursing Faculty Attached to Medical College Hospitals of Central Karnataka

Venu A.S.*, Kiran L.J.**

Abstract

Infections in health care settings and hospital settings around the world are major public problems which is a major health risk that leads to increase in mortality and morbidity. The Hospital acquired infections spreads through contaminated hands of the health care givers like doctors, Nurses, other staffs, relatives and friends of the Patients. The nurse is the member of the healthcare team who participates in prevention and protection of patient from infection. Some of the most basic strategies resulting in positive patient outcomes include the practice and promotion of hand hygiene, consistent use of aseptic technique, cleaning and disinfection practices, use of standard precautions. A quantitative study was used to assess the Knowledge, attitude and practice of nursing faculty on infection control and its prevention in medical college attached hospitals of central Karnataka. 100 staff nurses were selected by simple random sampling technique from selected medical college attached hospital of central Karnataka. Structured Knowledge questionnaire, attitude scale and checklist to assess the practice were used to collect the data from sample. Result revealed that Majority of the samples i.e 76% had average knowledge, 96% had favorable attitude and 75% had average practice on hospital Infection control and prevention. There was no association between knowledge, attitude and practice with selected socio demographic at 0.05 level of significance. There was negative relationship between the level of knowledge and attitude, Positive relationship between the level of attitude and practice at 0.01 level of significance. Study concluded that staff nurses should be educated to improve the knowledge regarding infection control and its prevention in hospital and to be trained effectively to have a good infection control practice in hospital setup to control and prevent hospital acquired infection or nosocomial infection to the patient.

Keywords: HCAI's (Health Care Associated Infection); Nosocomial Infection; Knowledge; Attitude and Practice; Staff Nurses.

Introduction

Infection is defined as the lodgment and multiplication of organism in the tissue of host [4].

Infections in health care settings and hospital settings and hospitals around the world are major public problems which is a major health risk that leads to increase in mortality and morbidity. It is estimated that more than 1.4 million people worldwide are suffering from hospital acquired Infections [1].

Nosocomial infection also commonly known by the terms health care associated and hospital acquired Infection (HCAIs). Nosocomial Infections (NIs) are Infections which results from the exposure of deliberated patients to the drugs, altered environment of the hospital. Nosocomial infections occur secondary to the patient's original condition [5].

Infections are considered nosocomial if they appear first 48 hours or more after hospital admission or after discharge [3]. The most common type of Nosocomial infections are surgical wound Infections, Respiratory Infections, Genitourinary and Gastrointestinal Infections [1].

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Health care associated Infections (HCAIs) are widely prevalent across the world. The prevalence of HAIs in Developing countries can be as high as 30 to 50%. Many of these pathogens Implicated in HCAIs are multi drug resistant's and are able to survive in the Environment. The HCAIs spreads through contaminated hands of the health care givers like doctors, Nurses, other staffs, relatives and friends of the Patients [5].

A study to assess the Knowledge and Practice regarding hospital Infections control practices was performed in G.B. Pant hospital, New Delhi among 400 health care personnel. A structured Knowledge questionnaire was used to collect information from 329 Nurses and 71 Doctors. The result revealed that Knowledge regarding the transmission of blood borne pathogens and their approximate risk was suboptimal (31.85%). There was significantly less awareness for nurses (24.8%) as compared with doctors (64%). Nurses used less barrier precautions (54.3%) when compared to doctors (75.2%). Before CVC approximately (82.75%) of sisters were aware of correct cleaning protocol while only (61.4%) of the doctors were aware regarding it.

The study concluded that Lack of knowledge and practices regarding basic infection control protocol should be improved by way of educational intervention in the form of formal training of the doctors and Nurses and reinforces the same [7].

A study to assess the level of Knowledge, attitude and Practices regarding disinfection procedures among Nurses in Italian hospitals was conducted by department of experimental medicine, second University Naples, Italy. A face to face Interview was used to collect the information from nurses. The results revealed that only 29% acknowledge that urinary and Respiratory tract Infections were the two most common Hospital acquired Infections and this was significantly higher in those with higher level of education.

Attitude towards the utility of Guidelines for disinfection procedure showed a mean score of 9%. Female Nurses had more positive attitude. Nurses with higher educational level and with a higher perception of risk of transmitting an Infectious disease while working were likely to perform appropriate antisepsis of the surgical wound and hand washing before and after medications [8].

The nurse is the member of the healthcare team who prevents and protects the patient from infection. The researcher felt that nurses play a major role in control and prevention of Nosocomial infection. So, the researcher felt to assess the staff nurses level of knowledge, their attitude and practices that they follow in the hospital to control and prevent the spread of Nosocomial Infection.

Methodology

Research Approach

Descriptive Research Approach.

Research Design

Descriptive Research design.

Sampling technique

Simple Random sampling technique is used to select the Hospital and samples (Staff nurses) for the study

Sample size: 100

Setting of study

Selected hospitals attached to Medical colleges of Central Karnataka (Davangere)

Tool used

Four tools were used in the present study

Tool 1 consists of the Items of Socio demographic variables

Tool 2 Consists of the structured knowledge questionnaire on infection control in hospital. It include General aspect of Infection, Hand Hygiene, Biomedical waste management, Isolation Precautions, Disinfection and Sterlization.

Tool 3 consists of attitude statements- A modified 5 point Lickert scale regarding infection control in hospital

Tool 4 Consists of Practice checklist on Infection control in hospital.

Procedure of data collection

The formal permission was obtained from the Medical Superintendent of selected Medical college attached hospitals in Davangere. The written consent was obtained by the subjects. Semi structured Knowledge questionnaire, Self Prepared Attitude Scale and observational check list adopted for the study was administered to the nurses. Data collected was then tabulated and analyzed.

Results

The major findings of the study are as follows:

1. *Findings Related to Socioeconomic Status of Staff Nurses*

- Majority of staff nurses were in between the age group of 20-30 Years that is 57 (57%).
- Majority of Staff nurses were female that is 79 (79%).
- Majority of Staff nurses qualification was GNM 92 (92%).
- Majority of Staff nurses got Information regarding Infection control and its prevention from CNE/ Workshop that is 54 (54%).
- Majority of Staff nurses had a clinical experience above 10 Years 26 (26%).
- Majority of Staff nurses monthly salary is above 1101 that is 62 (62%).
- Majority of Staff nurses participated in Infection control training 69 (69%).

2. *Findings related to Knowledge of staff nurses regarding Hospital Infection control and its prevention.*

- Majority of Staff Nurses i.e 76 (76%) had average knowledge, 16 (16%) Good knowledge and 8 (8%) had Poor knowledge Hospital Infection control and it's Prevention. (Figure 1)

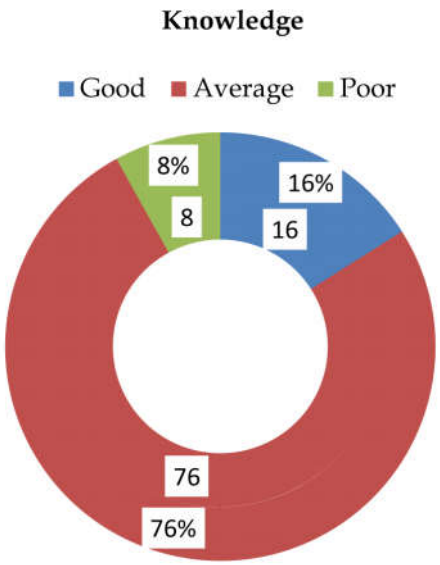

Fig. 1: Pie diagram showing distribution of samples based on their knowledge on Hospital Infection Control and its Prevention

3. *Findings related to Attitude of staff nurses regarding Hospital Infection control and its prevention.*

- Majority of staff nurses i.e 96 (96%) had favorable attitude and 4 (4%) had Unfavorable attitude toward Hospital Infection control and it's Prevention (Figure 2).

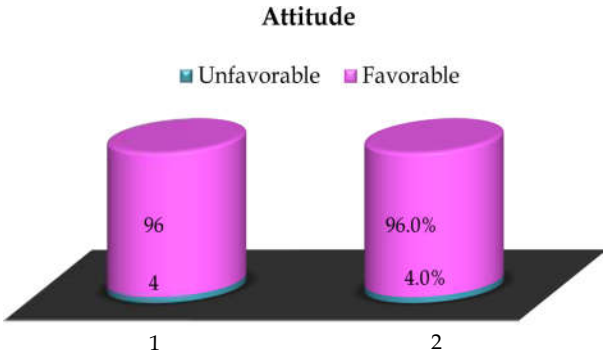

Fig. 2: Cylindrical diagram showing distribution of samples based on their Attitude on Hospital Infection control and its Prevention

4. *Findings related to Practice of staff nurses regarding Hospital Infection control and its prevention.*

- Majority of staff nurses i.e 75 (75%) had good practice and i.e 25 (25%) Average practice on Hospital Infection control and it's Prevention. (Figure 3).

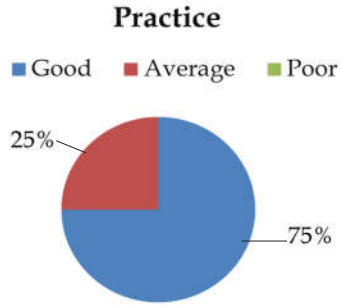

Fig. 3: Pie diagram showing distribution of Samples based on their Practice on Hospital Infection control and its Prevention

5. *Findings related to Association between knowledge of staff nurses regarding Hospital Infection control and its prevention with selected demographic variables.*

The Table 1 shows that there is no association between knowledge and Age, gender, qualification, source of information, Year of clinical experience, monthly salary, Participation in Infection control training.

Table 1: Association between knowledge of staff nurses regarding hospital Infection control and its prevention with selected demographic variables **N=100**

Variables	Chi-square Value(χ^2)	DF	Level of Significance
Age of Participants	6.209	4	.148
20-30 Years			p>0.05
31-40 Years			NS
41 Years and above			
Gender	0.305	2	.859
Male			p>0.05
Female			NS
Qualification	2.398	6	0.880
ANM			p>0.05
GNM			NS
PBBSc Nursing			
BSc Nursing			
Source of Information	8.846	6	0.182
Mass media			p>0.05
Self reading			NS
Health Personnel			
Conference/workshop/CNE			
Year of clinical experience	5.785	6	0.488
1-3 Years			p>0.05
4-6 Years			NS
7-9 Years			
Above 10 Years			
Monthly Salary	1.967	6	0.923
2000 to 5000			p>0.05
5001 to 8000			NS
8001 to 11000			
More than 11001			
Participation in Infection control training	7.683	2	0.21
Yes			p>0.05
No			NS

Table 2: Association between Attitude of staff nurses regarding hospital Infection control and its prevention with selected demographic variables **N=100**

Variables	Chi-square value(χ^2)	DF	Level of Significance
Age of Participants	1.660	2	0.436
20-30 Years			p>0.05
31-40 Years			NS
41 Years and above			
Gender	1.108	1	0.293
Male			p>0.05
Female			NS
Qualification	0.362	3	0.948
ANM			p>0.05
GNM			NS
PBBSc Nursing			
BSc Nursing			
Source of Information	2.344	3	0.504
Mass media			p>0.05
Self reading			NS
Health Personnel			
Conference/workshop/CNE			

Year of clinical experience 1-3 Years 4-6 Years 7-9 Years Above 10 Years	4.006	3	0.261 p>0.05 NS
Monthly Salary 2000 to 5000 5001 to 8000 8001 to 11000 More than 11001	0.557	3	0.906 p>0.05 NS
Participation in Infection control training Yes No	0.703	1	0.402 p>0.05 NS

Table 3: Association between Practice of staff nurses regarding hospital Infection control and its prevention with selected demographic variables N=100

Variables	Chi-square Value(χ^2)	DF	Level of Significance
Age of Participants 20-30 Years 31-40 Years 41 Years and above	0.882	2	0.663 p>0.05 NS
Gender Male Female	0.020	1	0.887 p>0.05 NS
Qualification ANM GNM PBBSc Nursing **BSc Nursing**	3.614	3	0.306 p>0.05 NS
Source of Information Mass media Self reading Health Personnel Conference/workshop/CNE	3.751	3	0.290 p>0.05 NS
Year of clinical experience 1-3 Years 4-6 Years 7-9 Years Above 10 Years	2.567	3	0.463 p>0.05 NS
Monthly Salary 2000 to 5000 5001 to 8000 8001 to 11000 More than 11001	7.487	3	0.058 p>0.05 NS
Participation in Infection control training Yes No	0.390	1	0.533 p>0.05 NS

6. *Findings related to Association between Attitude of Staff nurses regarding Hospital Infection control and its prevention with selected demographic variables.*

The table 2 shows that there is no association between Attitude and Age, gender, qualification, source of information, Year of clinical experience, monthly salary, Participation in Infection control training.

7. *Findings related to Association between Practice of staff nurses regarding Hospital Infection control and its prevention with selected demographic variables.*

The table 3 shows that there is no association between Practice and Age, gender, qualification, source of information, Year of clinical experience, monthly salary, Participation in Infection control training.

Table 4: Correlation between knowledge and attitude of staff nurses on Hospital Infection control and prevention

Selected Variables	Coefficient of Correlation	L.O.S
Knowledge & Attitude	-0.081	p>0.01 NS

Table 5: Correlation between Attitude and Practice of staff nurses on Hospital Infection control and prevention

Selected Variables	Coefficient of Correlation	L.O.S
Attitude & Practice	0.305	p>0.01S

S = Not significant

8. Findings related to Correlation between knowledge and attitude of staff nurses regarding Hospital Infection control and its prevention with selected demographic variables.

As one of the objectives of the study was to find out the relationship between level of knowledge and attitude, following hypothesis was formulated.

In Table 4 shows that the coefficient of correlation shows that there was negative relationship between the level of knowledge and attitude of subjects. Since the calculated P value was –0.081, p>0.01 was less than the table value.

9. Findings related to Correlation between attitude and Practice of staff nurses regarding Hospital Infection control and its prevention with selected demographic variables.

The table 5 shows that the coefficient of correlation shows that there was Positive relationship between the level of knowledge and attitude of subjects. Since the calculated P value 0.305, p>0.01 was greater than the table value.

Recommendation

1. A comparative study can be conducted between government hospital and private hospital staff nurses.
2. A structured teaching programme on Knowledge and practice regarding hospital infection control and its Prevention among staff nurse in hospitals can be conducted.

Conclusion

The study concluded that Majority of the Nursing faculty had average knowledge on hospital infection control and its prevention. Most of them had favorable attitude and most of them had average practice on Controlling hospital infection and its prevention. Study also proved that there was no association between knowledge with selected sociodemographic variables, no association between attitude with selected sociodemographic variables, no association between Practice with Selected sociodemographic variables.

There was negative correlation between knowledge and attitude but positive correlation between attitude and practice. Nursing faculty has to be given enough information regarding hospital infection control and its prevention to enhance knowledge and to be trained to improve the skills in infection control and prevention in hospital setup.

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Peripherally Inserted Central Catheter (PICC)

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M. Sudha Devi

Abstract

A Peripherally Inserted Central Catheter is long, small, flexible tube that is inserted into a peripheral vein, typically in the upper arm, and terminates in a large vein in the chest to obtain a central intravenous access. It needs to be inserted by specially trained professionals and prepare the patient to keep the PICC line safe with special care in order to prevent complications. Subclavian and jugular line placements may result in pneumothorax (air in the pleural space of lung), while PICC lines have no such issue because of the method of placement.

Keywords: Pripherally Inserted Central Catheter; Peripheral Veins; Cannula; Stylet; Consent; Thrombosis; Bung; Sutures; Tear; and Clot.

Introduction

A peripherally inserted central catheter (PICC) less commonly called a percutaneous indwelling central catheter is a form of intravenous access that enters the body through the skin (percutaneously) at a peripheral site extends to the superior vena cava (a central venous trunk), and stays in place (dwells within the veins) for days or weeks.

A device was developed in the United States in the 1970s that, when inserted into a peripheral vein and guided into the central vessels, acquires the characteristics of a central catheter. Initially implemented in ICUs, it was called Peripherally Inserted Central Catheter (PICC) Line Insertion. It is a safe alternative of central access of prolonged duration that permits the administration of solutions of high osmolarity and extreme or vesicant pH into the peripheral veins.

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Indication

Many intravenous medications and solutions cause damage to the peripheral venous endothelium and should be administered centrally to avoid this damage. So PICCs can be used for the following infusions.

- Total Parenteral Nutrition
- Chemotherapy
- Blood Transfusion
- Antibiotics
- Intravenous Fluids
- Short infusions for patients with short term infusions for patients with limited venous for therapies that will continue over long period of time.

Contraindication

- Lack of peripheral access
- Venous thrombosis
- End-stage renal disease.
- PICC insertion becomes impossible for patients with multiple previous PICCs.

Insertion

PICC is a long, thin and flexible tube inserted in a peripheral vein in the arm such as cephalic vein, basilica vein or brachial vein and then advanced proximally toward the heart through increasingly large veins, until the tip rests in the distal superior vena cava or cavoatrial junction.

Who can insert?

- Physicians
- Physician assistant
- Radiologist assistants
- Respiratory therapist
- Nurse Practitioner
- Specially trained certified registered nurses
- Radiologic technologist

Methods of Insertion

There are two methods of insertion of PICC

1. *Peel – Away Cannula Method*

- Access is established by inserting the cannula and stylet, into a palpable vein in or near the anticubital fossa.
- The stylet is removed and the catheter inserted through the cannula.
- The cannula is then pulled back and peeled away from the catheter.
- This method requires accessible veins at or near the anticubital fossa.

2. *Modified – Seldinger Method*

- A vein is accessed with a regular hypodermic needle, an intravenous cannula or an echogenic needle.
- A guide wire is not advanced past the shoulder sheath.
- A nick is made in the skin beside the guide wire, and an introducer sheath with dilator is inserted over the guide wire.
- The guide wire and dilator are removed, and the catheter is advanced through the introducer sheath, which is then pulled back and peeled away.

Preparation of the patient

- Assess the condition of veins and diagnosis in order to provide access throughout the course of therapy, minimize pain and venous damage, use nursing time efficiently, and be cost effective.
- Explain the patient and family members about risks and benefits of the procedure.
- Get consent from the patient that stating the patient understands the procedure.
- Prior to insertion the patient is encouraged to be well hydrated and if they are unable to achieve this, the giving of 500ml-1000ml of IV fluids is recommended, as dehydration can increase venous problems, making it difficult to cannulate the patient. It is thought that if the patient is well hydrated, there can be a reduction in insertion trauma and phlebitis.
- The patient's arm is kept warm for insertion. This stimulates blood flow and return via the large peripheral veins, making cannulation easier.

Steps of PICC Placement

The PICC insertion procedure is done in the radiology (x-ray) department or at your hospital bedside. The steps to insert it are:

- The person lies on a flat surface.
- A tourniquet is tied around the patient's arm near the shoulder.
- The arm must be kept straight and still during the procedure.
- Ultrasound pictures are used to choose the vein and guide the needle into the vein. Ultrasound looks inside the body with a device that is moved over the skin. It is painless.
- A local anesthetic cream is applied to numb the area.
- An injection to numb the area is given to decrease discomfort during insertion.
- Insertable portion of a PICC varies from 25 to 60 cm in length.
- Some lines are designed to be trimmed to the desired length before insertion, others are here may be simply inserted to the needed depth with the excess left outside
- Placement of PICC line into arm vein based on either Peel away cannula or Modified –seldinger method.
- The line is usually sealed with a special cap or bung. There may be a clamp to keep the line closed

when it's not being used. Sometimes it divides into two or three lines. This allows to have different treatment at the same time.

- PICC line is also provided with a "wing" having holes for either sutures or an adhesive securing device.
- The nurse sutures the PICC line in place and covers with a sterile bandage.
- It takes 1 – 1 ½ hours to place the PICC line.
- An X-Ray is done to make sure that the catheter is in the right place.

Maintenance of PICC line

- To maintain patency, regular flushing with normal saline locking with heparin or normal saline when not in use.
- Never use a syringe smaller than 10 ml for flushing the line because the pressure created by smaller syringes could damage the catheter.
- Blood pressure should not be taken on the arm with a PICC
- Dressing should be changed after 24 hrs or twice a week.

Care at Home

- Do not take a bath in a bath tub.
- Cover the insertion site with clear, plastic wrap and tape to keep it dry before showering.
- No swimming and no hot tub.
- Avoid a lot of arm movement and weight lifting.
- Arm may be tender and little uncomfortable for 1-2 days. Give rest to the arm for one day after insertion.

Removal of PICC line

The catheter line can be quickly removed by a trained nurse, even in the patient's own home itself. After removal, insertion site is normally bandaged with sterile gauze and kept dry for a few days, during which the wound can close and begin healing.

The tip of the catheter is sent for microscopy culture and sensitivity if patient is systemically unwell at the time of removal of the PICC. In certain units, it is sent as routine investigation.

Complications of PICC

- Infection
- Blood Clot
- Air in the PICC line
- Displacement of PICC
- Tear in the PICC line.

Benefits of using a PICC

- A PICC is more comfortable compared with the many "needle sticks" that would have been needed for giving medications and drawing blood. The goal is to spare your veins from these frequent "needle sticks".
- A PICC can also spare your veins and blood vessels from the irritating effects of IV medications.
- PICCs can remain in situ for extended periods of time, from seven days to 12 months.
- A PICC can be used in the hospital setting, nursing facility, or at home and can stay in place for weeks or months, if needed.
- A PICC can be used for many types of IV treatments.
- A PICC can be used to obtain most blood tests.

Risks during and after placement of a PICC

- There may be slight discomfort during the procedure.
- Bleeding may occur at the insertion site.
- It is sometimes necessary to attempt more than once and it may not be possible to insert the entire length of the PICC.
- During insertion of a PICC, accidental puncture of an artery, nerve, or tendon can occur near the insertion site. However, this is a rare event.
- A clot may form around the catheter in the vein (thrombosis), which can cause swelling and pain in the arm.
- Inflammation in a vein (phlebitis) can develop from the use of all types of IVs, including PICCs.
- An infection may occur at the insertion site or in the bloodstream.
- The PICC can come out, partially or completely, if not well-secured and completely covered.
- The PICC can move out of position in the vein and may need to be removed or repositioned.
- The PICC may become blocked. Medication may need to be used to clear it.

Conclusion

PICC is an alternative to central venous catheters in major veins such as the subclavian vein, the internal jugular vein or the femoral vein. Subclavian and jugular line placements may result in pneumothorax (air in the pleural space of lung), while PICC lines have no such issue because of the method of placement. Inherent in this process, is a sense of professional responsibility to prepare the patient for management of their role in safe care of their PICC. All staff who care for and access the site require a high standard of education regarding PICCs and should follow the appropriate guidelines.

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Severity Scoring Systems in Intensive Care: A Clinical Review

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Abstract

A large number of severity of illness scoring systems have been developed and they are widely used in intensive care practice. However, they are complex systems with their basis in mathematics. To use such systems effectively, it is important to appreciate what factors influence their performance so that they can be compared fairly and used most appropriately. The purpose of this review is to describe the methods commonly used to assess the various facets of performance in severity of illness scoring systems. The performance of the most frequently used scoring systems in adult intensive care practice are presented.

Keywords: Intensive Care; ICU Scoring; APACHE; Prognosis; Risk Assessment; Severity of Illness Index.

Introduction

The use of scoring systems to predict risk of mortality and evaluating outcome in critically ill patients is important in modern medicine. The first such system in widespread use was the APGAR score introduced in 1953 to asses the vitality of the newborn. The Glasgow Coma Scale (GCS) and Ranson score are other examples of systems that have gained widespread use. Within intensive care, a large number of scoring systems aimed either at the general intensive care unit (ICU) patient or defined subgroups have been developed during the last two decades. Prognostic or general severity scoring systems such as the Acute Physiology and Chronic Health Evaluation (APACHE) and Simplified Acute Physiology Score (SAPS) estimate risk based on data available within the first 24h of ICU stay. The standard mortality ratio (SMR), a key element in ICU benchmarking, can be calculated using these systems. Disease-specific scoring systems have been developed for several important subgroups treated in the ICU, such as pancreatitis, hepatic failure and adult respiratory distress syndrome. Because the ICU treats patients with one or more organ dysfunction (OD), several organ failure scoring systems have also been developed in the last 10 years. Scoring systems are also important in clinical trials and in the monitoring of quality-of-care.

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Classification of scoring systems [3]

There is no agreed classification of the scoring systems that are used in critically ill patients. Scores can be applied either to a single set of data or repeated over time. The available methods include;

1. *Anatomical scoring*. These depend on the anatomical area involved. Anatomical scoring systems are mainly used for trauma patients [e.g. abbreviated injury score (AIS) and injury severity score (ISS)].
2. *Therapeutic weighted scores*. These are based on the assumption that very ill patients require a greater number of interventions and procedures that are more complex than patients who are less ill. Examples include the therapeutic intervention scoring system (TISS).

3. *Organ-specific scoring*. This is similar to therapeutic scoring; the underlying premise is the sicker a patient the more organ systems will be involved, ranging from organ dysfunction to failure [e.g. sepsis-related organ failure assessment (SOFA)].
4. *Physiological assessment*. It is based on the degree of derangement of routinely measured physiological variables [e.g. acute physiology and chronic health evaluation (APACHE) and simplified acute physiology score (SAPS)].
5. *Simple scales.* It is based on clinical judgement (e.g. survive or die).
6. *Disease specific* [e.g. Ranson's criteria for acute pancreatitis, subarachnoid haemorrhage assessment using the World Federation of Neurosurgeons score, and liver failure assessment using Child-Pugh or model for end-stage liver disease (MELD) scoring].

Again ICU scoring systems can be divided into four major groups-

1. General risk-prognostication scores(severity of illness scores).
2. Disease-speciûc riskprognostication scores,
3. Trauma scoring and
4. Organ dysfunction (failure) scoring.

1. General risk-prognostication systems [1,2]

The basis for development of both the APACHE system and the SAPS in 1982 was the assumption that the severity of acute disease could be measured by quantifying the degree of abnormality of physiologic variables. These ûrst versions were soon replaced by more sophisticated models using prospective sampled patient data and advanced logistic regression analysis.

a. APACHE II (Acute Physiology And Chronic Health Evaluation)

The APACHE II model, published in 1985, was developed due to the complexity of the original model and it has become the most frequently used general mortality prediction model (MPM). The original number of physiologic variables was reduced from 34 to 12 and some were re-weighted. Patients under the age of 16 were not included.

In addition to the acute physiology variables, age, operative status and the presence of severe chronic Organ Dysfunction or immune suppression were incorporated. The final APPACHE II score is the sum of the acute physiology, age and chronic health points, calculated from the worst values during the first 24 hours of intensive care.

b. APACHE III

APACHE III was developed as a further reûnement of APACHE II. This comprises the three subscores age (0–24 points), acute physiology (0–252 points) and chronic health evaluation (0–23 points). A second objective of the developers was to reûne mortality prediction by correcting for risk in individually deûned patient groups. This could also be used to improve ICU discharge decisions. Finally, further development of the APPACHEIII score provides equations to estimate the length of stay in ICU,the amount and type of therapy required and the intensity of nursing care.

c. APACHE IV

Published in 2006, the APACHE IV system is made up of the acute physiology score (APS), age and admission circumstances, totalling 142 variables of which 115 are admission diagnoses. In contrast to SAPS III, the APS was found to be the most important factor, followed by disease group and age. As in earlier APACHE models, the APS was based on the most abnormal values registered during the ûrst 24h after ICU admission. APACHE IV also includes a separate scoring system for coronary bypass patients.

d. MPM II (Mortality Probability Model)

It was published in 1985, the MPM was the first general severity model to assess risk of death at ICU admission. Prediction models for assessment at admission and 24h were developed originally but models for assessment at 48 and 72h. MPM_0 includes a total of 15 variables collected at ICU admission; MPM_{24} consists of eight variables collected at 24h, as well as ûve variables obtained from the MPM_0. As the models consist mainly of dichotomous variables, scoring is very simple. The strength of the MPM II models lies in their simplicity of scoring and the possibility of sequential assessment of mortality risk throughout the ICU stay.

e. SAPS II (Simplified Acute Physiology Score)

It was developed and validated in France in 1984, used 13 weighted physiological variables and age to predict risk of death in ICU patients. This was published in 1994 . Like the APACHE scores, SAPS was calculated from the worst values obtained during the first 24 hours of ICU admission. The

developers focused on maintaining a scoring system based mainly on physiological variables. Twelve physiologic variables were included in addition to age, admission type and the presence of metastatic or haematological cancer or AIDS.

f. SAPS III

The SAPS III Outcomes Research Group published their new scoring system in 2005. It was realized that a mainly physiology-based scoring system (SAPS II) had serious shortcomings facing case-mix and lead-time bias. Three subscores, namely patient characteristics before admission (five variables), circumstances of admission (five variables) and acute physiology (10 variables) are summed up to produce the SAPS III score. The patients' worst physiologic parameters at ICU admission (1h) are recorded. Probability of mortality is calculated using the total SAPS III score in a general or customized equation based on the location of the hospital.

2. Disease- and organ-specic prognostic scores

Scores to quantify single-organ failure or a specific disease are often used outside the ICU and knowledge of these scores may be valuable when communicating within the ICU. They have seldom been developed using large prospectively collected data and logistic regression analysis. Their use is often not validated for ICU patients with concomitant organ failure, but they continue to be used to guide treatment and prognostication.

a. GCS (Glassgow Coma Scale)

The GCS was developed as a method for assessing depth and duration of impaired consciousness and is one of the most widespread clinical scores in medicine. Motor response, verbal response and response to pain are noted, producing a total score from 3 to 15. A score of 14–15 indicates mild injury, 9–13 moderate injury and 3–8 severe injury. Its strengths lie in the ease of calculation and reproducibility. The GCS has become a standard method of assessing unconsciousness and coma, but its use outside the setting of trauma and traumatic brain injury is problematic.

Its use is not encouraged in patients with other reasons for unconsciousness such as intoxication and epileptic activity. It has no place in assessing the depth of sedation in the ICU. The importance of the GCS in the ICU, with the exception of neuro-intensive care, is probably its inclusion in more complex scoring systems.

b. Ranson score

The Ranson score was originally developed from a cohort of 100 patients with pancreatitis from a single centre. After univariate analysis, 11 variables were found to be associated with morbidity and mortality. Patients with severe pancreatitis are often admitted to the ICU and the Ranson score is still widely used despite the lack of formal validation and several complaints concerning the development of the score.

c. Child–Pugh (CP)

Child and Turcotte ûrst proposed a classiûcation system of liver failure in 1964 , later modiûed by Pugh in 1973. The CP classiûcation system grades the patients into three groups. When developing the CP score, empirical methods were used to select variables. Inclusion of two subjective variables (ascites and encephalopathy) may weaken inter-observer reliability and they are often altered by therapy. The CP is in common use and has been extensively validated outside the ICU.

d. Risk, injury, failure, loss and end-stage kidney (RIFLE) classification

Acute kidney failure is a frequent and important predictor of mortality in the ICU population. To establish a uniform classiûcation of acute kidney injury, the RIFLE classification was proposed by the acute dialysis initiative in 2004. Three severity levels of acute kidney injury (risk, injury and failure) and two outcome classes (loss and end-stage) were proposed. Characterization of acute kidney injury is based on urine output and the elevation of serum creatinine compared with baseline. In a validation study of the risk, injury and failure criteria in the ICU setting, patients in the injury and failure groups were shown to have a signiûcantly increased risk of mortality even after the correction for non-renal organ failure and other confounding factors.

3. Trauma scoring systems [4]

a. Therapeutic Intervention Scoring System(TISS)

TISS was originally designed to measure the severity of illness by quantifying the type and intensity of the treatment provided. TISS points are dependent on local, or even individual, treatment strategies, and the therapeutic capability of the unit, as well as the appropriateness of an intervention, the score cannot be used to compare the efficacy of intensive care in different units. It provide an accurate assessment of the level of care and monitoring and

can be performed daily. It is therefore valuable administrative tool. TISS can be used to calculate the workload required by each patient to establish Nurse –Patient ratio, to determine a hospital's requirement for ICU beds and to calculate the costs.

b. Injury Severity Score(ISS) and Combined Trauma and Injury Severity Score(TRISS)

The ISS and TRISS system was developed to provide a standard approach for the evaluation of trauma care. Mortality following traumatic injury depends on the degree of physiological derangement, the extent of the anatomical injury, the age of the patient and whether the trauma was blunt or penetrating. The TRISS methodology combines these factors – the RTS, the ISS, age, blunt or penetrating injury- to provide a measure of the probability of survival.

4. OD Scoring Systems [1,2]

Multiple OD syndrome is the leading cause of death for patients admitted to the ICU. The general severity scoring systems, with the exception of $MPM_{48h-72h,}$ do not consider OD that develops after the ûrst 24h of ICU stay. Deûnitions of multi-organ failure do not take into account the fact that the development and resolution of organ failure is a continuum of alterations and severity rather than a definite event.

a. The Sepsis-Related Organ Failure Score(SOFA)

Developed in a conference initiated by the European Society of Intensive Care Medicine in 1994. During development, there was focus on keeping the score objective and independent of therapy, making the collection of variables uncomplicated in most ICUs. The SOFA score uses routinely collected data for the calculation of a score of 0–4 for each organ, the higher number meaning more severe failure. SOFA comprises separate daily scores for respiratory, renal, cardiovascular, CNS, coagulation and hepatic failure. The scores can be used in several ways, as individual scores (each organ), as the sum of scores on one single ICU day or the sum of the worst scores during the ICU stay.

b. Multiple-Organ Dysfunction Score (MODS)

Published in 1995, the MODS had similar goals as SOFA, in recognition of the need for a classiûcation and prognosis system that could quantify the effect of multiple-organ failure on outcome. This score uses variables which reflects physiological derangement, rather than therapeutic interventions used to support failing organs. Only post-resuscitation values are used in the calculation of MOD score, values are recorded at the same time each day and missing or unobtainable values are presumed to be normal. The MOD score provide a measure of admission severity of illness, intensity of therapeutic intervention and global ICU morbidity, and may be useful as an outcome measure in clinical trials.

c. LODS(Logistic Organ Dysfunction Score)

The European/North American Study of Severity Systems provided data for the LODS in 1996. It was the ûrst OD score to be developed with the use of multivariate regression analysis of a large database. Twelve variables for six organ systems (neurologic, cardiovascular, renal, pulmonary, haematologic and hepatic) were chosen to deûne OD. These variables were recorded as the worst value during the ûrst 24h in the ICU and do not include therapeutic interventions (except mechanical ventilation) or physiologic variables not readily available in all ICU patients. Four severity levels were identiûed assigning the scores 0, 1, 3 or 5 for each organ system according to the severity of failure. LODS was developed for the evaluation of OD on the ûrst day of ICU stay and not as a tool for monitoring disease progression, although there are modiûcations of LODS where scoring is performed on a daily basis.

Why Predict Outcome?

a. prognosis
b. cost-benefit analysis
c. withdrawal of treatment
d. comparison between different centres
e. monitoring/assessment of new therapies
f. population sample comparison in studies

Requirements for a Good Scoring System [3]

a. simple, reliable, easily obtainable
b. wide patient applicability - different diagnoses - all age groups - all levels / types of ICU's.
c. high sensitivity/specificity - ie. should be a good discriminator
d. stimulates improvement in outcomes
e. independent of treatment
f. physiological parameters

g. optimal time is unclear

h. number of criteria is unclear

Advantages of scoring systems

- Past experiences are taken into account in an unbiased manner, where as, with human decisions, recent experiences has a disproportionate influence.
- Objective outcome predictions should be more reliable because they are based on reproducible data.
- The database supporting the risk estimate is substantially larger than any one clinician's experience.
- The risk estimates are based solely on the patient's response to treatment.

Conclusion

General illness severity scores are widely used in the ICU to assess resource use, predict outcome, and characterize disease severity and degree of organ dysfunction. All the scores were developed to be used in mixed groups of ICU patients and their accuracy in subgroups of patients can be questioned; disease-specific scoring systems are increasingly being developed. As ICU populations change and new diagnostic, therapeutic and prognostic techniques become available, all the scoring systems will need to be updated. Importantly, the different scoring systems have different purposes and measure different parameters; Different forms of scoring systems are frequently used in the ICU. They have become a necessary tool to describe ICU populations and to explain differences in mortality. As there are several pitfalls related to the interpretation of the numbers supplied by the systems, they should not be used without knowledge on the science of severity scoring.

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Postoperative Complication of Cataract Surgery

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Abstract

Pseudophakic bullous keratopathy refer to the development of irreversible corneal edema as a complication of cataract surgery. As corneal edema progresses and worsens, first stromal and then intercellular epithelial edema develops. This can cause disrupt vision and create pain sensation. Treatment can include hyperosmotic eye drops to reduce swelling, bandage contact lenses to reduce discomfort, glaucoma medication to reduce the flow of fluid to the cornea, and surgical procedures to replace the damaged tissue.

Keywords: Pseudophakic Bullus Keratopathy; Sensitivity; Corneal Edema; Phakodenesis; Bandage Contact Lens; Intraocular Lens; Cataract Surgery; Sequelae; Endothelial Tissue.

Introduction

A 60 years female patient reported that she has eventually experienced progressive decline in her vision in the left eye. The patient began to notice increasing tearing and light sensitivity. Vision deteriorated rapidly in 3 months. Her best corrected visual acuity (BCVA) was 6/3 and with pinhole 6/9 in right eye and in the left eye, only she was able to count the fingers close to face. Her intra ocular pressure through Non contact tonometry was about 10mmHg. She has the history of cataract surgery with posterior chamber intraocular lens (PCIOL) placement in both eyes (OU) nearly 20 years before.

Further ocular examination shows that there was corneal vascularization, presence of posterior chamber intraocular lens in pupil flare and pseudophacodonesis and diagnosed as having pseudpphakic bullous keraropathy.

She was advised to take medications such as Myticom and Hypersol eye drops 2 times a day and Lubrex eye drops 3 times a day for 2 days and after that ophthalmic surgeon done a Descimet's membrane Endothelial Keratoplasty (DMEK) under peripheral block anesthesia.

On the first postoperative day, slit lamp examination of left eye shown that there was bandage contact lens implantation, deep vascularisation, haptic in anterior chamber and advised for Tab.Wysolon 40mg od for 5days, Tab.Dolo 650 mg SOS, Tab. Cefimint 1bd for 3 days, Myticom eye drops 6 times a day, Moxigram and Lubrex eye drops for 3times a day.

On the third post operative day air bubble done under topical anesthesia as well as advised to come for review after 45 days. 60 days after the DMEK the patient came for review with the complaints of pain, watering, discharge and photophobia, tensed eye ball in left eye and its confirmed that graft rejection.. Visual acuity in left eye found to be 1/60 and planned for Penetrating keratoplasty(PKP) under peripheral block anesthesia. On 6th postoperative day of PKP, visual acuity is improved to 2/60 in left eye.

Definition

Bullus Keratopathy is characterized by corneal edema with formation of epithelial bullae. It is secondary to loss or dysfunction of the corneal endothelial cells which usually maintain the cornea's dehydrated state. This patient's edema resulted as a sequelae of cataract surgery thus it is called pseudophakic keratopathy.

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Etiology

- Fuch's Dystrophy
- Trauma during cataract removal, endothelial cells suffer mortality or damage.
- Progressive stromal edema.
- Mulitiple glaucoma rprocedures.
- Retinal detachment repair with silicone oil.

Pathophysiology

The epithelium and endothelium are both semipermeable membranes that create a barrier to the flow of water and other electrolytes into the cornea.

The corneal endothelial cells normally do not undergo mitotic cell division and cell loss results in permanent loss of function when endothelial count drops too low, the metabolic pump in the endothelium starts failing to function and fluid moves anterior into the stroma and epithelium. The excess fluid precipitates swelling of the cornea.

As fluid accumulated between the basal epithelium cells, blister like formations form (bullae) and they undergo painful ruptures releasing their content to the surface. These characteristics malformations disrupt the vision and create pain sensations.

Clinical Manifestations

Signs: Corneal edema (epithelial, stromal, endothelial), subepithelial bullae or erosions, superficial punctate keratitis, Descemet's folds, subepithelial haze or scarring, corneal neovascularization, increased corneal thickness, infectious keratitis, +/- guttata, CME (rare)

Symptoms: Asymptomatic, decreased vision, pain, tearing, foreign body sensation, photophobia, red eye, halos around lights.

Diagnostic Evaluation

- *Slit lamp, specular microscope or confocal microscope:* To examine the cornea to look for subtle changes in the appearance of cells in the endothelium that are characteristic of the disease.
- *Pachymetry*: To detect increased corneal thickness that might indicate corneal swelling from the disease.
- *Visual acuity testing:* Reveal decreased vision due to corneal swelling.

Treatment

- Hyperosmotic eye drops (5% Sodium Chloride)– To reduce swelling
- Bandage contact Lens to reduce discomfort
- Glaucoma Medications – to reduce the flow of fluid into the cornea. E.g.: Beta-blockers and alpha-agonists (timolol 0.5% QAM or brimonidine 0.2% BID).

Surgical Management

Desimet's Stripping Automated Endothelial Keratpolasty

DSAEK is a partial thickness cornea transplant procedure that involves selective removal of the patient's Descemet membrane and endothelium, followed by transplantation of donor corneal endothelium in addition to donor corneal stroma. A tunneled corneoscleral incision is created, the recipient endothelium and Descemet membrane is removed, the graft is folded and inserted with non-coapting forceps (forceps that do not meet at the tips), and an air bubble is placed in the anterior chamber to support graft adherence.

Descimet's membrane Endothelial Keratoplasty

DMEK is a partial thickness cornea transplant procedure that involves selective removal of the patient's descemet's membrane and epithelium followed by transplantation of donor corneal epithelium and descemet membrane without additional stroma tissue from the donor.

A clear corneal incision is created, the recipient endothelium and descemet membrane are removed, the graft id loaded into an insertor. After injecting the tissue into the anterior chamber, the surgeon orients and unscrolls the graft and a bubble of 20% Sulfur hexafluoride (SFG) is placed in the anterior chamber to support graft adherence.

Penetrating Keratoplasty (PK)

PK is a full-thickness transplant procedure, in which a trephine of an appropriate diameter is used to make a full-thickness resection of the patient's cornea, followed by placement of a full-thickness donor corneal graft. Interrupted and/or running sutures are placed in radial fashion at equal tension to minimize post-operative astigmatism. Later, the sutures are removed selectively to reduce the amount of astigmatism present.

PKs are performed primarily for visually significant stromal scarring, opacities with an

uncertain status of the endothelium or significant posterior corneal involvement, corneal ectasia such as keratoconus and pellucid marginal degeneration, especially if there is history of hydrops, combined stromal and epithelial disease, infectious or non-infectious corneal ulcerations or perforations and regraft related to allograft rejections.

Postoperative Complications

- Wound leak
- Glaucoma
- Endopthalmitis
- Primary Endothelial failure
- Persistent epithelial defect
- Microbial Keratitis
- Late failure

Preoperative Preparation

- Instructed to stop taking Aspirin, Coumadin or other blood thinners before surgery.
- no eating and drinking after midnight on the night before surgery.
- wearing loose, comfortable clothing on the day of the procedure.
- keeping your face free of makeup, creams, lotions, and jewelry.
- arranging for someone to drive you home after the procedure.

Immediate Postoperative Care

- A short-acting mydriatic (cyclopentolate 1%) is instilled topically and the eye is patched with a gauze pad and a rigid metallic or plastic eye shield.
- Patients are generally encouraged to have a normal diet and change over to comfort-able body posture soon after the surgery.
- As soon as patients recover from the effects of anaesthesia they are permitted regular activities.
- It is important to instruct the patient to avoid direct trauma to the eye.
- In any activity where the patient is not comfortable because of poor vision in the fellow eye or systemic disability, assistance should be taken to prevent any injury to the operated eye.
- In the eyes suspected to have postoperative rise of intraocular pressure (IOP) including when viscoe-lastic substances such as sodium hyaluronate have been left in the anterior chamber during surgery, systemic oral acetazolamide 250 mg is administered.

Follow-up visits

- It is mandatory to evaluate the eye on slit-lamp for wound integrity, epithelial defects, corneal oedema, IOP, iritis, and the possibility of infection on the first postoperative day.
- If any of these complications manifest or persist, evaluation of the operated eye should be continued on a daily basis for a few more days.
- As soon as the condition becomes normal, further evaluation may be at the end of a week followed by every two weeks for one month and then every month for the first year.
- In the absence of any complications, scheduled evaluations at increasing intervals of once or twice a year are adequate.

Follow up care

- Wash your hands before touching your eye
- Patient may also experience "sandy" sensations due to the presence of sutures in the operated eye. Do not touch or rub the eye. Sutures may be removed by the doctors at the doctors' discretion any time from three (3) months to one (1) year postoperatively.
- Use a fresh facial tissue for your eye each time. Gently blot any tears. Never use the same tissue for your nose and eye.
- Moisten a cotton ball with Saline solution to gently remove any crusting on your lashes.
- Do not irrigate your eye.
- Wear your glasses or eye shield (without the pad) while awake for 1 month after surgery for protection.
- Wear your eye shield (without the pad) for sleep for 1 month after surgery for your protection
- Wear your eye shield (without the pad) when taking a shower or washing your hair for 1 month after surgery for your protection
- Your eye will be sensitive to light and glare, you can wear your sunglasses
- Rest both eyes for 10 seconds every 5 minutes for the first week after surgery
- Limit your time reading, working on the computer and riding in an automobile.

- Stay away from dusty and crowded environments.
- Avoid strenuous exercises for four to six (4 – 6) weeks and swimming and contact sports for six to nine (6 – 9) months.
- No sexual activity for 3 weeks after surgery.
- Avoid constipation, bending and lifting heavy objects.
- Patient should seek medical treatment right away if you have any of the following Symptoms-

  Redness of the eye

  Pain and discomfort of the eye

  Sudden drop in vision

  Increased tearing
- Instructed to stop taking Aspirin, Coumadin or other blood thinners before surgery, may resume taking these medications the day after surgery.

Conclusion

Any type of intraocular surgery, especially cataract surgery, may damage endothelial cells and hasten the decline in endothelial cell count. Pseudophakic bullous keratopathy (PBK) is a post-operative condition that can occur as a complication of cataract extraction surgery and intraocular lens placement. Both intraoperative insult to the endothelium and long-term cell damage as a result of the lens implant can lead to PBK. Mild PBK may be managed with hypertonic saline drops and ointments that help to dehydrate the edematous cornea. However, the endothelium may need to be replaced. So, it is essential that we properly respect and protect the endothelial cell layer during intra ocular surgery.

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