NPCB GUIDELINES FOR CONTROL OF EYE SURGERY MISHAPS

Dr. Anita Misra, **Prof. Madhumati Misra**,
The P.G. Deptt. Of Ophthalmology, S.C.B. Medical College & Hospital, Cuttack

While there has been significant increase in the number of cataract operations performed in this country , there has been instances where serious mishaps have occurred.

Hence, Govt. of India(Blind Control Section) in a News Letter (Vol.I,No.4,January-March,2003) has published following guidelines, that should be followed while undertaking cataract surgery with a request letter on 4th October, 2006 to all states to widely disseminate this information to all eye care personnel including NGOS.

General precautions to safeguard against post-operative infections following ophthalmic surgery: Directorate General Health Services

The most important measure against the occurrence of endophthalmitis after intraocular surgery is taking meticulous precautions to ensure total asepsis and sterility at the time of surgery . Attention has to be paid to the four key sources of contamination:

Patient, Personnel, Instruments and Environment.

The Patient :

1. Prophylactic antibiotics in the days preceding surgery and subconjunctival injection at the end of surgery should be given. For this, Ciprofloxacin or Tobramycin with the frequency of administration as four times a day for about 3 days may be used.
2. Betadine solution should be used on the table before commencing surgery.
3. The use of povidone-iodine 5% solution (Not Scrub) is now a strongly recommended practice for all intraocular surgeries.
4 There is strong rationale for subconjunctival injection at the end of the surgery.
5 Antibiotics may also be used in the infusion fluids.
6 Adequate facial wash to be given with antiseptic soap the night preceding surgery , periocular skin painted with betadine solution on morning of surgery.
7. Apply Opsite or similar adhesive taking particular attention to ensuer its tight adherence at medical canthus, nasal bridge and naso-labial fold. Keep adhesive sightly redundant over the open eyelids while applying. However, prevent corneal touch. Lift temporal edge of the adhesiveat lateral canthus and make a horizontal slit up to the medial.At medial canthus, extend the cut in a 'V' or 'T' shaped manner. Insert eyelid speculum through the slit opening in such a manner that lid margin and lashes are wrapped with edges of adhesive.
8 All patients can be a major source of contamination in the operating room. This should be minimized by preparing the surgical site (e.g. cutting eyelashes) cleaning with a bacteriostatic agent, ensuring evacuation of the bladder and large intestine, transporting the patient to the operating room in a clean gown and on a stretcher covered with clean linen.

The Personnel :

1. All OT personnel must display co-operative and appropriate behavior.
2. General health and personal hygiene of individuals working in OT needs close monitoring. Any one with upper respiratory infections, draining skin lesions or infections of eyes,ears or mouth should not be permitted to work in the OT
3. Dress code has to be strictly enforced. All personnel working in OT must change into hospital laundered scrub attire and wear OT

footwear , cap to cover all scalp hair adequately and properly fitting face mask before entering the OT room. Face mask should completely cover nose and mouth and fit amply against face. Masks should not be left dangling under chin. They should be changed if need be.

4. Every one should ware scrub apparel with long sleeves and tight wrist.

Cuffs Method of Scrubbing :

1. Wash hand and arms to two inchses above elbow, clean finger nails under running water. Wet scrub brush , apply antimicrobial soap solution. Begin surubbing palm, outer and inner aspect of each finger, nails, dorsum of hand and circumferentially work up to elbow. Rinse hand and arm, keeping arm above elbow level.
2. If one touches anything in process of scrubbing, procedure should be repeated.

Gowning and Gloving :

1. In order to minimize the risk of contaminating the sterile operative set up during the process of gowning and gloving, separate table should be used.
2. Only scrub nurse should gown and glove herself, the rest should avoid self gowning and gloving. This minimize risk of contamination from dripping water on the sterile table in the process of picking up the hand towel and self gowning.
3. Members of the team should be gowned and gloved as soon they enter the room. Once gowned and gloved, they should remain in the strile end of the room until the patient is draped and the sterile set up is moved into place.
4. During any waiting period, the sterile gowned and gloved members of team must keep thir hands at waist level in front of them. They should never sit, place their hands on lap or fold their hands.

Supplies, Instruments and Equipments:

a) The furniture on which the sterile packs are to be placed in the sterile end of room should be clean and dry.

b) Each pack must be examined for holes in the wrapper, watermarks, (indicative of area of moisture), expiry date and integrity of closure.

c) The tops of all furniture should be approximately the same height as the operating room table. This level is known as the level of sterility.

d) Unsterile equipment, furniture, personnel should remain twelve inches from any sterile surface. Unsterile personnel should never walk between two sterile fields.

The Environment: Asepsis of the Operating room.

a) Ideally the floor in the OT should be sprayed and wet vacuum picup used between surgical procedures and at the end of the day. Alternatively, mopping of the floor with a clean head every time using a two bucket system should be employed; through this is a less effective method

b) Spot cleaning of walls and the ceiling should be undertaken as needed everyday.

c) Doors and switches should be cleaned with germicide.Open shelves to be cleaned daily with detergent while closed cabins may be cleaned once a week.

d) The sink area should be cleaned several times daily and kept as dry as possible .The spray heads on the faucets should be removed and cleaned daily.

e) Outside of autoclaves to be cleaned daily and inside surface weekly. The inside cleaning needs Trisodium phosphate to remove chemical residue.

f) Furniture used during a surgical procedure needs to be wiped with a detergent/germicide at the end of the day. The same applies to spotlights and other protable equipment, stretchers and buckets. The latter, in addition should be steam cleaned weekly.

g) Before removing her gloves, the scrub nurse should place all soiled inside the laundry bin. No one should handle soiled with bare hands. Soiled linen should never be left on the floor or transported on trolley used for other purposes.

The laundry bin should be removed immediately after it fills up.

h) Liquid waste material such as contents of suction bottle should never be disposed off in scrub sink or utility sink but only into container meant for the purpose. Ideally disposable suction bottles should be used. Glass suction bottles when used should be cleaned with disinfectant and autoclaved before reuse. If autoclaving is not feasible, they should at least be cleaned with disinfectant between cases.

Operation Theatre Sterilization :

a) Operation theatre should be washed with copious amount of water, followed by fumigation with formalin vapour (30 ml of 40% formalin dissolved in 90 ml. of clean water for fumigation of 1000 cubic feet by aerosol spray).The room should be kept closed for 6 hours. Carbolisation with 2% carbolic acid is then undertaken . This method has disadvantage that it takes about 24 hours for the pungent smell of formalin and carbolic acid to dissipate. If fumigator (Oticare) is not available 30 ml of 40%formalin with 10 Gms.of potassium permanganate (KMn 04)should be put in a basin for a space of 1000 cu feet and room sealed for 24 hours.

b) A new method of fumigation has been evolved using "Aldekol"a mixture containing 6% formaldehyde 6% glutaraldehyde and 5% benzalkonium chloride. To sterilize 4000 cu . ft. 325 ml of Aldekol is dissolved in 150 ml of water and sprayed by aerosol for 30 minutes. The room should then be closed for 2 hours following which fumes are allowed to clear by putting on the exhaust or air conditioning. In effect, the operation theatre is sterile in just over 3 hours.

Sterilization of Instruments, Equipment and Linen :

The most appropriate method should depends on type of meteral, the inventory size and the facilities available.Sterilization using moist and dry heat is physical methord of sterilisation.Moist heat is used as steam under pressure and dry heat is used as circulating air.

Sterlization methods of choice for articles during eye surgery.

1. Linen (Gowns,Caps Masks Drapes) : Autoclaving
2. Glasswere(Syringes) : Dry heat sterilization
3. Metal instrument : Heat labile: Dry heat/ ETO
   Heat resistant : Autoclaving
4. Plastic instrument : ETO sterilization
5. Sharp instrument : ETO sterilization
   e.g. vannas scissors, keratome
6. Intraocular lenses : ETO sterilization
7. Diathermy : Autoclaving
9. Endoilluminator Probes : ETO sterilization
10. Silicon oil, buckle/sponges : Autoclaving

Sterilization monitoring systems :

Monitoring the results of sterilization is essential to ensure safe sterile products during surgery. The main objective is to minimize infection potential. The methods used for recording the frequency of monitoring and interpretation of results must be standardised.

Principles of Sterile Techniques :

- When bacteria cannot be eliminated from a field, they should be kept to an irreducible minimum.
- If there is any doubt about the sterility of anything, consider it to be unsterile.
- Persons who are sterile should touch only sterile articles while persons who are not sterile should touch only unsterile articles.
- Sterile persons should avoid leaning over an unsterile area.
- Tables are sterile only at table level.
- Consider gowns sterile from waist to shoulder in front and up to sleeves.
- The edge of anything that encloses sterile contents is not sterile.
- Sterile persons should keep well within the sterile area; non-sterile persons should keep away from the sterile area.
- Moisture is a potential contamination source, avoid soggy linen packages.
- Keep non-sterile personel or visitors to minimum.

Important Considerations in Asepsis and

Sterilization

Surgeon Factors :

- Surgical scrubbing is not just hand washing.
- Do not operate with bare/ improperly scrubbed hands or open wounds
- Gowns are not sterile below waist, on back, region, of armpits and neck.
- Cap and Mask are useless if do not fully cover scalp hair and nostriles.
- Do not let your mask hang loose around the neck .
- Do not wear same footware from unrestricted to restricted area.
- Do not move around with hands folded (onto Armpit) or in grown pocket.
- Check indicator tapes (autoclave, ETO, etc.)
- Check irrigation fluid for particulate mater and constituents.
- Do not re use instruments, fluids, linen, apparel, IOL etc without adequate sterilization.
- Do not leave eye predisposed (improper valve, wound gap, exposed suture knots, vitreous wick)

PATHWAYS TO SEPSIS AND ASTERILITY

General OT personal :

- Preparing all trolleys beforehand.
- Relying on unconventional methods (Boiling).
- Unsterile person completing a trolly using a chittle forceps.
- Throwing around soiled linen and covers etc.
- Discarding swabs used for skin preparation onto the floor.
- Sterile persons leaning over an unsterile area.
- Nonsterile persons reaching over a sterile area.
- Sterility is doubtful, but decides to use the same.
- Linen is soaked with moisture, still using it.

Patient Preparation :

- Not specifically ruling out and operating ,inspite of adnexal infections or septic foci.
- Performing repeated contact produceres (applanation, biometry)
- Unclean attire, exposed scalp hair.
- Improper surgical painting or draping.
- Not washing conjunctival sac, meibomian secretions with providone indine

Instruments :

The following instruments are likely to be more contaminated.

- Tubular instruments, cannula
- Devices with antiperistaltic pumps and reflux mechanisms (phaco, vitrectomy, suction bottles)

◆◆◆