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ISSUE 3

Livewire

INFECTION CONTROL

April, 2015

NEWS LETTER

EDITORIAL BOARD

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Dr. N. K. Agarwal has recently joined as the Deputy Director General (Ophthalmology), National Programme for Control of Blindness in Directorate General of Health Services, Ministry of Health and Family Welfare. He did his M.B.B.S. in 1975 (AIIMS) and M.D. in 1979 from the globally reputed ophthalmology institution, Dr.Rajendra Prasad Centre for Ophthalmic Sciences, ¬All India Institute of Medical Sciences (AIIMS), New Delhi. He served the community as an eye surgeon for thirty years before entering into hospital administration.

He also did his WHO fellowship (Ophthalmology) in 1996 from USA. He has attended numerous workshops and conferences at the national and international level. He has written many research papers on many subjects related to eye healthcare. He is a renowned name in the field of Ophthalmology.

FOREWORD BY DR. N. K. AGARWAL

There have been many reports of mass infection in the eye camps where predominantly cataract surgery is undertaken on a mass scale. The latest such report came from the village of Ghumman, district Gurdaspur, Punjab. Here, unfortunately, 40 people lost their eyesight due to fulminant endophthalmitis in the operated eyes. The National Programme for Control of Blindness (NPCB) has been issuing guidelines to the NGOs as well as Govt. hospitals, to be observed by them in Letter and spirit to enable them to completely avoid the menace of any type of blinding intraocular infections.

Your initiative as regards infection control, particularly the cluster infections, is highly welcome as this will help in sending clear signals to eye surgeons all over India with the aim of thwarting post-operative serious ocular infections, jeopardizing vision recovery in the operated eyes.

NPCB has time and again re-iterated its stand on the policy as regards the approach to cataract surgery in eye camps. Full stress is to be laid on the quality of the surgery rather than the quantity i.e. the number of cataract operations done by each surgeon in one full day. Due to the instances of serious post-operative vision snatching eye infections in surgical eye camps in different parts of the country, the guidelines for the NGOs/Govt. hospitals/private eye surgeons intending to perform mass cataract surgery have been revised. These are as follows:-

1. Eye surgery for removal of cataract, glaucoma etc. is not to be treated as a minor surgery under any circumstances. For leading a normal life, vision is very essential and success in intraocular eye surgery is a must for restoration of normal vision.

2. Permission to hold surgical eye camps in a district is to be granted by the CMO/DPM and also the district collector/district magistrate after assessing the proposed OT to be used, facilities for sterilization of OT, keeping in view the existing guidelines issued by the Govt. of India as regards OT design and other instructions. This permission should be sought by the surgical team at least 2 weeks in advance.

3. No makeshift OT or hospital with a shutdown OT for more than 7 days should be granted permission to hold the eye camp.

4. The operating team should consist of minimum two eye surgeons, two staff nurses, one OT technician and one OT assistant with requisite experience for all.

To be Continued...

5. Not more than 20-30 eye operations per surgeon are to be performed in a day by the main eye surgeon in the eye camp. The second eye surgeon must not hurry up in performing the surgery. All eye surgeries including ECCE, SICS and Phaco with Intraocular lens implantation (IOL) are to be done by using a good quality working microscope by each surgeon, having separate microscopes. Proper IOL implantation must be the aim for all cataract surgeries.

6. Full stress must be laid on thorough sterilization of the operation theatre, OT equipment like microscopes, surgical trollies, patient and surgical team member's linen to be used, all instruments to be used during eye surgery, all types of intraoperative surgical consumables including the wash fluid, methyl cellulose and the intraocular lens to be implanted. Under no circumstances, low-grade sterilizing conventional fluid like industrial spirit/acetone must be used for sterilization of instruments.

7. Multiple sets of cataract surgery instruments must be available with the surgical team to ensure separate instruments for each patient. This will ensure proper sterilization throughout the day.

8. Preoperative scrutiny of all the consumables to be used in the camp must be done as regards manufacturing firm, expiry date as well as general suitability (packing and hygiene). Wash fluid bottle must be shaken and keenly observed to detect any impurities, if present.

9. Cataract surgery should always be done in a hospital OT with all sterile precautions.

10. Proper bandaging of the operated eye in the OT must be done.

11. Full postoperative treatment must be given to each patient to prevent postoperative eye infections and other complications.

12. Regular postoperative checks on the 1st, 3rd& 7th postoperative days for each patient must be done by the operating surgeon himself along with the team members.

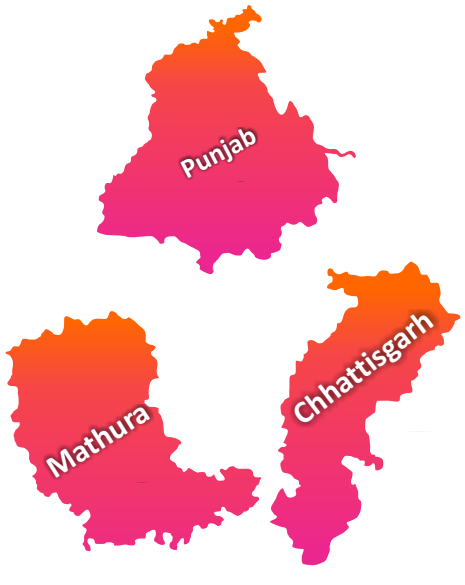
13. Future follow up must be done to accomplish full vision recovery.

14. Cataract surgery records with photo ID, address, phone number (self/relative) must be maintained for all operated cases for easy and early contact of patients, whenever required.

Strict adherence to the above mentioned guidelines will go a long way in preventing any type of cluster infection mishap. This initiative of informing the ophthalmic fraternity about the protocol to be observed in the OT is a welcome activity. I hope the ophthalmologists across the country will make use of it to bring down the rate of endophthalmitis, cluster infections in particular.

INFECTION CONTROL MEASURES

THE NEED OF THE HOUR – ARE WE DOING ENOUGH?



Places of recent episodes of cluster infection

All of us are aware of the episodes of cluster infection which occurred recently. It is very painful for sure. This should not have occurred. We should do everything to ensure that it does not occur, particularly with the recent advances in science. But, it is also a fact that we keep hearing this kind of news every now and then. There are many more such episodes that can be listed. However, we must bear in mind that more such episodes go unnoticed than the number being reported.

Any common man will naturally feel that the doctors were not careful enough and that is why this happened. It is very much justified to think like this as lay men. But, as operating surgeons – as Ophthalmologists – what do we feel? Is it squarely the fault of the operating surgeons OR there are other factors also coming into play? Let us look at some of the scientific facts to understand the whole issue better.

More than this, action taken by the government at different places in the past raises many questions.

- **DHARAMPUR, GUJARAT (2008)–** The eye OT was ordered to be shut down and it remained closed for five years. They were allowed to open the theatre with the condition that they will not perform eye surgeries in this OT.

- **JOSEPH EYE HOSPITAL, TRICHY (2008) –** They have five hospitals and infections occurred in one of their satellite hospitals. They were ordered a shutdown of all five hospitals for one year. The decision was reviewed and the hospitals were allowed to start operating at a later time. Doctors had to face a CBI enquiry!! In Tamil Nadu, during that winter, the performance had dropped by 25% following the Joseph Eye Hospital episode.

- **PALI SEVA MANDAL (2009)–** They were ordered a shut down and it remained closed for more than a year. The Government of Rajasthan had ordered a ban on diagnostic eye camps following reports of cluster infection at several places. The result was a drop in the performance of the surgeries to **15,000** in the month of January **2009** against the total performance of **45,000** in the month of January **2008.**

The questions are:

1. Rational for suspending doctors in Beawer & not banning doctors at rest of the places.
2. What action has been taken against drug, needle and Ringer manufactures?
3. Were proper aseptic methods followed in all the places by the operating team?
4. Were there any lacunas seen in the organization of camps?
5. What remedial action is the Govt. considering?
6. What purpose does the ban serve?

Now, let us look at some other important aspects of post-operative infections.

TIMING OF CLUSTER INFECTION

Most of the cluster infection episodes take place in the winter months. Generally, it is seen that the culture positivity of the theatre air is maximum during monsoon months when the atmosphere is damp. The no. of colonies grown on the open dish sedimentation plate is maximum at this time. However, cluster infection occurs the most in winter months. This suggests that the occurrence of cluster infection may be related to the unusually high workload in winter months. The systems breakdown when it is made to work under stress continuously during winter. This applies to human beings also – the amount of compromise accepted during this period is maximum and when the staff is tired, the chances of committing mistakes are also high.

What is the rate of post-operative infection in the best hospitals of the world?

To prevent infection in any operation is the job of science of asepsis and anti-sepsis. The understanding of this science has made rapid progress and the rate of infection in eye operations in western countries has come down to 1 in 10,000 or 15,000 operations. Although, the rate has gone up in recent years in western world also due to clear corneal phaco emulsification surgeries. Recent data from western world is presented here.

Country	Year of Publication	Incidence (%)	No. of Operations
USA	1991	0.22	24105
USA	1992	0.015	27181
France	1992	0.32	34690
Germany	1999	0.15	103090

Netherlands	2000	0.10	25330
Canada	2000	0.01 to 0.18	13886
Sweden	2002	0.10	54666
Australia	2003	0.16 to 0.36	83677
Japan	2003	0.5 to 0.29	11595
USA	2005	0.29	9079
Ireland	2005	0.5	8763
UK	2007	0.099	101920
Sweden	2007	0.048	225471
Europe	2007	0.05 to 0.35	16211

We don't know the rate of infections in India because the true rates of infection do not get reported. However, today we believe that a rate of 1 in 1000 operations in the Indian context should be considered OK. The lay man will naturally think - why is a ten times higher rate acceptable in India?

The facts mentioned below will tell us the reasons.

1. We have a much higher amount of dust in our country.
2. Due to more heat, a lot of sweating takes place and that makes it difficult to maintain cleanliness.
3. As such, hygiene is poor in our country.
4. Poor people don't get nutritious food and hence, their body's capacity to fight against external factors is less than adequate.

But, more importantly, do we all know the science of asepsis and antisepsis adequately? Do we know that infection control is a well-developed science? How many of us know about the availability of textbooks of infection control? Do we know the existence of the Infection Control Society of India? Do we know that this society meets regularly, just like the All India Ophthalmological Society?

HOW DOES THE PATIENT GET INFECTED POST-OPERATIVELY?

Any post-operative infection is part of hospital acquired infection which is a major problem even in developed countries. The infection control guideline from the joint commission international states that almost 25% of the patients getting admitted in the hospital develop hospital acquired infection and this rate is nearly 50% in developing countries. Hospital acquired infection means the patient gets the infection after getting admitted in the hospital. And most of the times, hospital staff spreads this infection. The book states that maintaining cleanliness of hands (hand hygiene) plays a crucial role in spreading the infection. And that it is difficult to develop the habit of maintaining the cleanliness of our hands. If that is the scenario in developed countries, we can easily imagine the situation in a developing country like India. Recent studies have shown that even mobile phones carry a very high chance of spreading the infection.

Both patient factors and hospital factors play a role in the development of post-operative infection. We all know that it is difficult to control the patient factors. Among hospital factors – inadvertent touch, sterilisation failure and environmental factors are the three most important things in that order of importance.

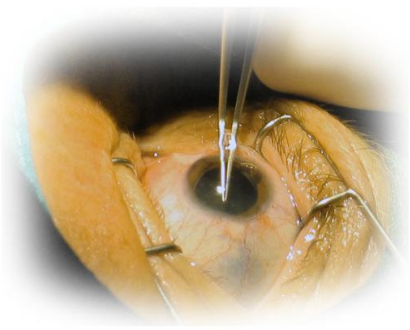
DO OTHER TYPES OF SURGERIES ALSO END UP WITH INFECTION?

The post-operative infection rate applies to all kinds of operations and not just eye operations. Other types of operations also have similar rates of infection but in other operations, it results in delayed wound healing without any other major untoward effect. Whereas in the eye, in many cases, it destroys the eye with resulting loss of vision and that makes it more apparent and alarming because vision is very important for all human beings. It is difficult to think without being able to see the world.

WHY IS THE RATE OF INFECTION FOLLOWING CATARACT SURGERIES HIGHER IN INDIA?

Over and above the points mentioned earlier regarding why the rate is high in India, the following important considerations cannot be overlooked.

On one hand, India has the largest cataract backlog of the world. At the same time, the no. of ophthalmologists available in the country is merely 16000. There are 2.5 Crore legally blind eyes due to cataract in the need of cataract surgery. Against this, the annual performance of the whole country is a meagre 6.5 million. More than this number gets added every year to the pool of existing cataract blinds. The average performance of an Ophthalmologist in India is barely 400 per year. This figure is much higher among Ophthalmologists in NGOs – around 1000. The need to perform more numbers is evident from these facts. Then comes the time required for cataract surgery which is hardly 10-15 minutes in the hands of an experienced surgeon. All facts put together, the ophthalmologists try to increase their output. When we try to perform more number of surgeries in less time, the chances of accidents naturally go up. It is like driving on an express highway where many vehicles get involved in an accident at the same time because of high speed.



DO WE TRAIN THE DOCTORS ENOUGH IN INFECTION CONTROL MEASURES DURING MEDICAL EDUCATION?

The worst thing about medical education, is the painful fact that our medical curriculum lacks in training the doctors in infection control measures. As students, we never knew that infection control is a subject in itself. We always learnt scrubbing, gowning, gloving and other important aspects by observing our seniors – nobody ever talked about the science of infection control. How can we expect the doctors to practice the science which they never learnt? All that we are trained for is doing cataract surgery – to become cataract surgeons. A famous saying from our teacher, Dr. R.N.Mathur was, “It is easy to become a good cataract surgeon but it is very difficult to become a good ophthalmologist.” He was damn right. We consider the patient as one more cataract – a pathology, but we do not look at the patient as a whole. Not just that, we get to perform only about 20-30 cataract operations during three years of our residency (even less in many parts of the country) - we get a degree at the end of three years but we are not confident to perform a good operation by ourselves. What a dichotomy! We need to produce more doctors in the country but the training infrastructure is not capable of taking the load. What is the answer?

IS THIS INFORMATION AVAILABLE TO THE OTHER PHILANTHROPIC-MINDED PEOPLE WHO SET UP AND RUN HOSPITALS?

There are many philanthropic-minded persons around the country who are trying to do whatever is possible for them in very remote, difficult areas where there are no other facilities available. At times, they are doing the work facing life threats also, particularly in naxalite areas. But, many of them may not have systematic knowledge about how to manage a hospital. They are all kind-hearted individuals without the knowledge of hospital administration. There are guidelines available in the National Programme but the information does not reach all. Few may be aware that there is a guideline for the setting up of hospitals available from the National Accreditation Board for Hospitals. As such, enforcement of rules and regulations is rather poor in India, which makes it easy to continue to operate without complying with the laws. This sometimes results in the pharma industry producing substandard drugs.

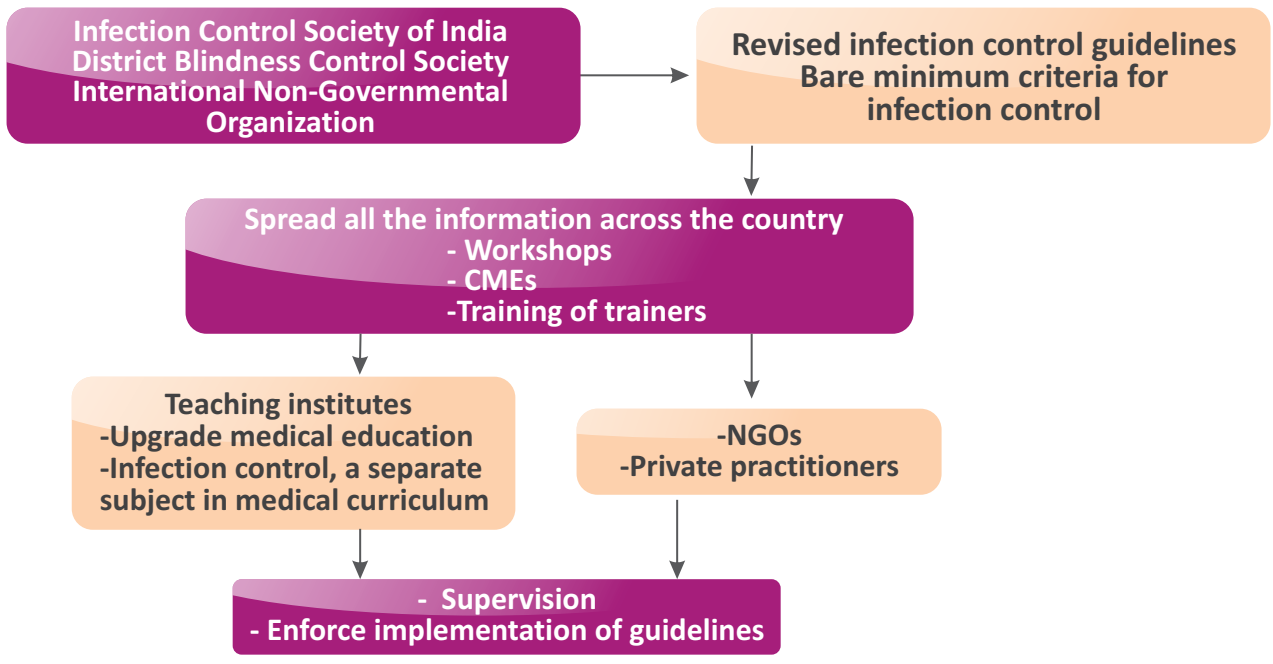
WHAT CAN BE DONE TO MAKE SURE THAT WE BRING DOWN THE RATE OF POST-OPERATIVE INFECTION IN EYE SURGERIES IN TODAY'S GIVEN SITUATION?

As we are discussing post-operative infections in eye operations and we restrict ourselves to it, we need to:

- Come up with a revised infection control guideline under the National Programme
- Spread the information among all the players in the country
- Add infection control as a separate subject in the medical curriculum
- Make all the people involved in medical care more quality conscious
- Enforce implementation of the guideline through various efforts including supervisory inputs

Most important of all, we all need to remember that we have to adhere to a strict discipline code while working inside the eye operation theatre. Like any other activity, there are clearly laid down guidelines (just like other Safe Operating Practices - SOPs) to be followed inside the operating room. We need to upgrade our knowledge of infection control measures, which is a big subject in itself. There are criteria for operation theatre design which need to be followed while constructing eye OTs. There are books, manuals and journals available on the subject and these can help us bring down the rate of infection post-operatively. We need to train our staff working inside the operating room correctly because if they also commit a mistake, we end up paying a very high price for that mistake. We need to understand that we have to monitor the work done by our staff members. CME sessions should be organised on a regular basis for these staff members to retrain them in all the activities and also teach them the recent advances in the science of “Asepsis and Antisepsis.”

We need to become more quality conscious – this may mean that the cost of surgery may go up but otherwise in the present day scenario, we will lose the faith of the people which is very crucial. If we can't bring down the rate of post-operative infections, we will need to think about the work that we are doing – we all know that the post-operative complications appear in the causes of blindness surveys conducted across the country and that is unfortunate and certainly avoidable.



Let us make all out efforts to remove the post-operative complications from the list of causes of blindness and make sure that the faith of the patients is not lost. As mentioned earlier, recently, after the episode of cluster infection, the performance goes down, Govt. imposes ban on diagnostic eye camps, doctors are suspended –they face CBI enquiries. Let us do whatever is needed to bring down the rate of infection in eye surgeries.

All concerned organizations and people need to be encouraged to become members of the “Infection Control Society of India” – national body or its state chapter. A short list of the reference material is given below for your reference.

Following guidelines, manuals and textbooks can help us:

1. Consensus guideline for the prevention of infection in the operating room – Hospital Infection Society.
2. Endophthalmitis Workshop, Pune - CD of the Proceedings
3. General Precautions to safeguard against post-Operative infection following ophthalmic surgery – NPCB, India.
4. Hinduja Hospital, Mumbai – Infection Control Manual
5. Infection Control Manual – CMC, Vellore.
6. MJ Lights – Operative Operation Theatre
7. Operative Operation Theatre – Sewa Rural, Jhagadia.
8. Standardised protocol for cataract surgery – Sight savers International.
9. Sterilisation and aseptic practices in an ophthalmic operation theatre & CD of sterilisation protocol – Aravind Eye Care Systems, Madurai
10. Textbook of hospital infection control – Shaheen Mehtar
11. Ophthalmic operating theatre practice – A manual for developing countries, Ingrid Cox and Sue Stevens
12. The sterile supply department: Guidelines for planning and quality management, edited by Geetha Mehta

Websites

1.www.efhss.com

2.www.infectioncontroltoday.com

3. http://www.aorn.org/journal/

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2. *Invest Ophthalmol Vis Sci 2004;45: E-Abstract 4936*
3. *Katz et al. A fourth generation ocular fluoroquinolone. A suppl. To refractive care for ophthalmologists. Vol 7, no 3, march 2003*

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