Epidemiology of cataract surgeries in Hooghly district of West Bengal – India

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Abstract

Background: Blindness is a major public health problem. Major causes of blindness are cataract (62.6%), refractive error (19.7%), glaucoma (5.8%) and corneal pathologies (0.9%). National Programme for Control of Blindness (NPCB) is a centrally sponsored programme with goal to reduce the prevalence of blindness from 1.4% to 0.3% by 2020. **Objective:** Present study was conducted to describe the epidemiology of cataract surgeries done in Hooghly district and to identify the strengths and gaps.

Materials and Methods: A secondary analysis was done on NPCB data on cataract surgery. Data was collected from all 5 governmental hospitals, NGOs and private hospitals of Hooghly district. Data from year 2006-07 to 2010-11 was collected and compared.

Results: During the study period there were 2860 registered blinds in Hooghly district, so the blindness prevalence rate was 0.06 percent. The target of cataract surgery was 23000 and achievement was 23951(104.1%). Out of total 23951 cataract surgeries done, more than 50% were from NGO sector followed by Private and Government sector. More than 99% surgeries were done with IOL.

Conclusions and Recommendations: As per the strategy of NPCB, role of NGOs and private sectors are increasing gradually. Intense IEC activities are necessary to increase public awareness.

Key words: Cataract[1], NPCB[4], Secondary analysis[6], IOL[3], PMOA[5], Hooghly District[2]

Access this article online	
Quick Response Code:	**Website:** www.innovativepublication.com
	DOI: 10.5958/2395-1451.2016.00018.4

Introduction

Blindness is a major public health problem in the world as well in India. Blindness is a condition which renders people economically unproductive and converts them into social burden. Every effort from individual to international level should be given to prevent blindness among the people. The prevalence of blindness in the general population is highest in the African continent (about 1.2%) followed by Asia (0.75%), Latin America (0.5%) and North America, Europe, Oceania, Japan and Russia (0.2%)[1].

Out of 37 million people across the globe who are blind, India has 12 million blind persons i.e. about one third of the global burden of blindness. The current prevalence of blindness (visual acuity <6/60) in India is about 1% in 2006-07 (NPCB survey).Uttar Pradesh has the highest number of blinds[1,2]. In a national survey, the prevalence of blindness in the population of above 50 years of age (presenting vision <6/60 in better eye) was 8.5%. The WHO uses presenting vision <3/60 in the better eye for international comparisons. Using this cut off, the prevalence was 5.34%. The prevalence varied from a low of 4.2% to a high of 13.7% across the different districts[2]. The prevalence of blindness in West Bengal is 1.07% (2001) and there are total numbers of 862073 lakh blinds in the state[3].

The major causes of blindness in India are cataract (62.6%), refractive error (19.7%), glaucoma (5.8%) and corneal pathologies (0.9%). The most common cause of blindness in children is uncorrected refractive error followed by vitamin A deficiency. In children of 5-14 years of age group the visual impairment prevalence is 6.4%, of which is refractive error 81.7%[1].

National Programme for Control of Blindness (NPCB) is a centrally sponsored programme launched in the year 1976 by Government of India with the goal to reduce the prevalence of blindness from 1.4% to 0.3% by 2020, and qualitative and quantitative improvement of the program in manpower and infrastructure to serve new cases of blindness, thus preventing future backlog.

There are few revisions of strategies for achieving the goal of NPCB. There is shift from eye camp approach to a fixed facility surgical approach and from conventional cataract surgery to IOL implantation for better quality of post-operative vision in operated patients. For cataract surgeries minimum target is set as 400 operations per lakh population per year.

In West Bengal the NPCB is functioning from 1981-82 to improve the total aspect of eye care services. Since the inception of the NPCB, West Bengal has steadily improved its position maintaining the status of moderate prevalence rate (1% - 1.49%) like Gujarat,

Punjab, MP, AP, and Orissa so far blindness is concerned[3-5]. Very high quality ophthalmic services are now available in the state. For the last three years more than three lakhs of cataract surgeries were performed with at least 96% of achievement of target.

Objective

Present study was done with the following objectives,

1. To describing the epidemiology of cataract surgeries done in Hooghly district of West Bengal.
2. To identifying the strengths and gaps in cataract surgery.

Materials Methods

Study Design: Descriptive study on secondary data on the cataract surgery of National Programme for Control of Blindness in Hooghly District.

Study population: Total population of Hooghly district was 55, 47,635. Hooghly district has one district hospital, three sub-divisional hospitals, one state general hospital, 17 block primary health centers and 61 primary health centers.

Data collection: Data was collected from all 5 secondary level governmental hospitals, NGOs and private hospitals and nursing homes in Hooghly district where cataract surgeries were performed. Data was collected from the office of the Deputy Chief Medical Officer of Health-II, Hooghly district. Data was also collected from all the block health administration. The data for the year 2010-11 is considered for analysis.

Operational indicators of National Programme for control of blindness is (1) Reduction of prevalence of blindness to less than 0.3% and (2) Minimum target for cataract surgery rate per lakh population is 400 per year.

Data analysis: Data from year 2006-07 to 2010-11 was collected and compared rates of different cataract surgeries. Data analysis was done by using Microsoft excel. Rate, ratio and proportion were used as statistical tools to describe and summaries the data.

Results

Organization: The national programme for control of blindness was implemented through the district blindness control society in Hooghly district. The chairman of the society was the district magistrate and the vice-chairman is the chief medical officer of health. The deputy chief medical officer of health-II was the member secretary and was directly responsible for implementation of the programme. The senior most ophthalmic surgeon of the district hospital advices the member-secretary on the technical and operational aspects.

Infrastructure: In Hooghly District there were 5 governmental hospitals all of which were secondary level hospitals where cataract surgeries were performed e.g. one district hospital at Chinsurah; 3 sub-divisional hospitals at Chandannagar, Serampore and Arambag; and one state general hospital at Uttarpara. There were 6 NGOs in the district enlisted with NPCB. The NGOs had designated hospitals for cataract surgeries. There were also private hospitals and nursing homes performing cataract surgeries.

There was no district mobile unit. There was no eye bank but one cornea collection center was functioning in the district.

Manpower: There were 8 ophthalmic surgeons, 25 paramedical ophthalmic assistants, 263 medical officers in the governmental sector. The eye surgeons performed cataract surgeries. The medical officers provide primary eye health care to the patients and referred to the eye surgeons if necessary, and the PMOAs provide facility based eye screening activities and organized village and school eye health screening services.

Prevalence of blindness: During the study period there were 2860 registered blinds in Hooghly district. So the blindness prevalence rate was 0.06 percent.

Cataract surgeries performed: During 2010-11 the target was set at 23000 and achievement was 23951(104.1%). Out of total 23951 cataract surgeries done in Hooghly district, more than 50% was from NGO sector followed by Private and Government sector. More than 99% surgeries were done with IOL (Table 1).

Table1: Sector-wise distribution of cataract surgeries performed in Hooghly district 2010-11

Sector/ Hospital	Conventional	I.O.L.	Total
Government			
Imambara Sadar Hospital	38	525	563
Chandannagar Sub-divisional Hospital	6	110	116
Walsh Sub-divisional Hospital, Serampore	28	114	142
Arambag Sub-divisional Hospital	8	198	206
Uttarpara State General Hospital	15	125	140
Sub Total	95	1072	1167
NGO Sector	0	13533	13533
Private Sector			
Various private hospitals and nursing homes	0	9251	9251
Grand Total	95	23856	23951

While the achievement in cataract surgeries in percentage was 95.8% average in case of West Bengal since2006-07; it was 115% in 2009-10 in Hooghly district where the average achievement was 108.9% since 2006-07 (Fig. 1). But the achievement in cataract surgeries with respect to the targets in govt. sector in Hooghly was very low at 39% in 2010-11. The NGO and private hospitals achieved 97% and 154% the targets given to them respectively in the same period.

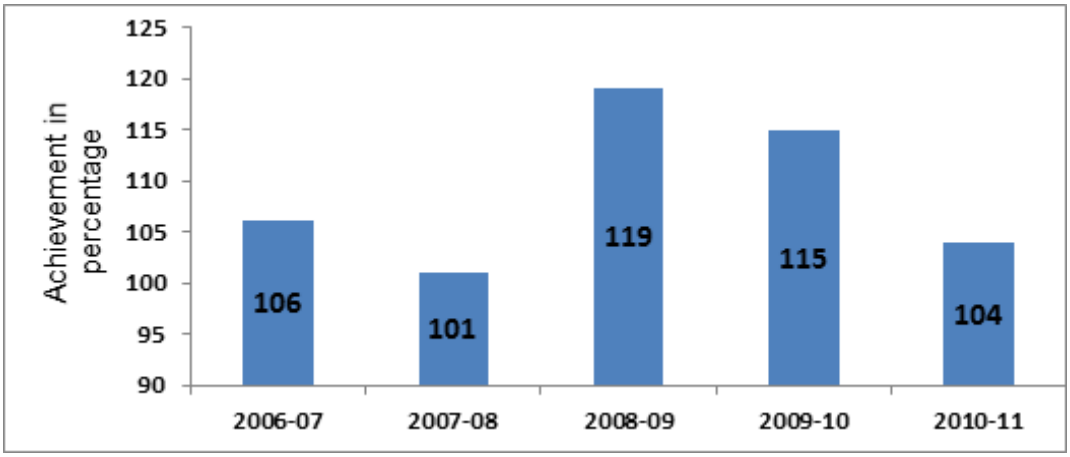

Fig. 1: Achievement in cataract surgery from 2006-07 to 2010-11

Among the cataract surgeries performed in 2010-11 conventional lens was 95 only and intraocular lens (IOL) was 23856 (Table 2). The sector-wise breakup was like this for conventional lens all the 95 were performed by government hospitals. For IOL, in govt. hospitals 1072 (4.5%), by NGO 13533 (56.5%), and in private hospitals 9251(39%) cataract surgeries were performed. Overall IOL surgery rate to total cataract surgeries was 99.6% (Table 2). We observed from the data since 2006-07 that conventional cataract surgeries were exclusively performed in governmental hospitals. Since 2008-09 the cataract surgery rate per lakh population per year was more than 449 which is above the NPCB target of 400 per lakh population.

Table 2: Year wise break up of different cataract surgeries performed from 2006-07 to 2010-11

Year	Conventional	I.O.L.	Total
2006-07	203	9735	9938
2007-07	102	19145	19247
2007-08	77	23701	23778
2008-09	107	25141	25248
2010-11	95	23856	23951

Since 2006-07 to 2010-11 female patients comprised persistently 53% of the total patients on whom cataract surgeries were performed (Table 3).

Table 3: Sex wise distribution of cataract surgeries performed from 2006-07 to 2010-11

Year	Male (%)	Female (%)	Total (%)
2006-07	4667 (46.96)	5271 (53.04)	9938 (100)
2007-08	8967 (46.59)	10280 (53.41)	19247 (100)
2008-09	11120 (46.77)	12658 (53.23)	23778 (100)
2009-10	11809 (46.78)	13437 (53.22)	25248 (100)
2010-11	11393 (47.57)	12558 (52.43)	23951(100)

From the analysis of the monthly time trend of cataract surgeries since2006-07, it was observed that the winter months (from December to March) were the peak period for cataract surgeries. In these months average monthly cataract surgeries performed were more than one and half times than in the months of April to November (Fig. 2).

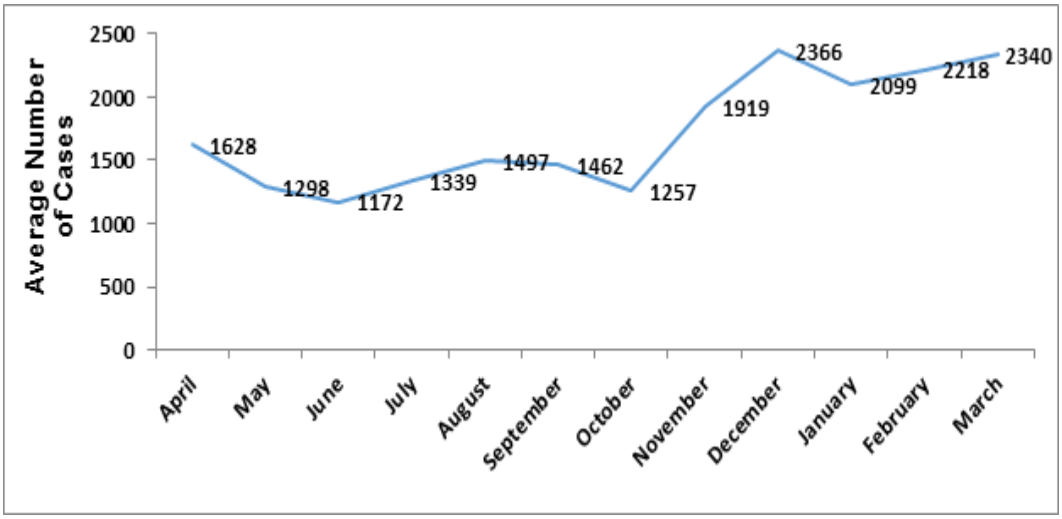

Fig. 2: Average monthly cataract surgeries for the period 2006 - 07 to 2010 - 11

Discussion

In terms of NPCB standards Hooghly was a better performing district in 2009-10. The total achievements in cataract surgeries were always more than 100% during the study period of the last five years. The cataract surgery rate was also always more than 400 per lakh population in the last three years. As far as cataract surgery is concerned the performance of govt. hospitals is far below expectations. This is more than compensated by the NGOs and private hospitals with their professionalism and humane approach.

The rate of cataract surgery in government establishments was low due to following reasons,

1. Though the manpower in terms of number of medical officers and Paramedical Ophthalmic Assistants (PMOAs) were adequate their motivational level should be increased.
2. The institutional set up in the operation theatres for cataract surgeries was not always congenial to surgeons. Nursing personnel were not ear marked during cataract operation causing apparent lack of manpower. Unavailability of anesthetists often led to postponement of operation.
3. Good quality medicines were not always available for operation which often led to complications causing loss of credibility of government sector among the clients.
4. The equipments were not lacking but their annual maintenance contracts (AMCs) should be duly looked after so that their functional levels were adequate.
5. Proper IEC activities should in favor of govt. sector were not emphasized. World Vision Day and Blindness Fortnight were regularly organized and observed but their impact in govt. sector was poor. Interpersonal communication towards the target population was to be increased. No active IEC campaigns were performed during lean period.
6. There was no district mobile unit in the district.
7. The NGOs are providing better logistic and transport facilities to the potential cataract surgery patients so they feel encouraged to be serviced by the NGOs.

The role of NGOs and private sectors are increasing gradually over the last five years as per the strategy of NPCB. In some cases the relevant data were not complete, updated or properly stored and managed. The targets for cataract surgeries were not judiciously fixed; this might have caused overestimation and undermining of performances of government, and NGOs and private sectors respectively.

The prevalence of blindness in Hooghly of 0.06% could be due to imperfect and underreporting. The village blindness registers were not updated regularly. The paramedical ophthalmic assistants and sub-centre based health workers should be encouraged to update these. Cataract surgeries done in males and females were same.

Only about one third of the patients selected in village blindness screening camps got operated for cataract. There is ample scope to improve service to those patients to prevent future backlog.

Limitations

1. In some cases the relevant data were not complete, updated or properly stored and managed.
2. Village blindness registers were not updated so necessary data could not be retrieved.

Recommendations

1. Adequate manpower including ophthalmic surgeons, medical officers, nursing personnel and PMOAs should be recruited for smooth functioning of the cataract surgical operations.

2. Adequate supply of good quality medicines is to be ensured. Instruments are to be properly maintained.
3. PMOAs should increase outreach activities.
4. Intense IEC activities are necessary to increase public awareness.
5. ASHAs are to be involved in the programme for bridging the gap between health system and the beneficiaries.

Financial Support: Nil

Acknowledgement: Contributions of district administration are duly acknowledged.

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