Satya Rani Hazra Award 2008

Influence of cataract surgery in socioeconomy of rural Bengal population – A comprehensive eye survey

Dr. Sumana Chatterjee, Dr. Jayanta Deb(Kuila), Dr. Jagadish Ch. Deb(Kuila)

Purpose : To quantify socioeconomic influence of cataract surgery in rural Bengal.

Methods and Materials: This is a prospective study of two year duration where 400 patients with BCVA <6/60 in better eye due to cataract were selected from Arapanch village and Sarisha village of South 24 parganas, Sriddha village and Deulihat village of East Midnapur district .Information regarding education, lifestyle, job, income/month and no.of family members was taken before and after cataract surgery.Socioeconomic status was evaluated using modified Kuppuswami scale to note any difference of status before and after cataract surgery.

Results:
1. Socioeconomic class improves from upper lower to lower middle in male population.
2. Socioeconomic class remains same in female population but significant improvement occurs in socioeconomical condition.
3. Socioeconomic class improves from upper lower to lower middle in overall population.

Conclusion: Cataract surgery significantly improves socioeconomic status in rural Bengal population.

Key words: Cataract surgery , socioeconomy , modified Kuppuswami scale

Community ophthalmology examines the problem of blindness from the perspective of the community. We look at the question of why there may be 10 blind in the community for every 1 who makes it to the doctor to receive treatment. This requires investigating the size of the problem, the causes of blindness and eye disease in the community, the availability of eye services, the attitudes of the people towards visual disability or eye diseases, the attitudes of the people towards the services, and the many barriers that prevent people from using services. When these issues are defined, then solutions can be sought, agreements can be reached among all those concerned, and programmes can be implemented to put solutions in place. These programmes are intended to improve the quality of life. Many NGOs in association with several governmental efforts are working actively to reduce the curse of cataract blindness by increasing the quantity and quality of cataract surgery as one of the objectives of National Programme for Control of Blindness – India,Vision 2020 – The Right to Sight. Traditionally the modified Kuppuswami Scale (KUP) has been used for determining the socioeconomic status of the patient. This scale is a composite score of per capita monthly income, education of the head of the family and profession of the head. It gives us a maximum score of 29 and a lowest of 3.

Address for correspondence:
Dr. Sumana Chatterjee
3/402 Bidhan Sishu Sarani, Kolkata-700054
Phone: 94321 17333
Email:dr.sumanachatterjee@rediffmail.com

Materials & Methods

This is a prospective study of two year duration (2006 – 2008) where 400 patients with BCVA <6/60 in better eye due to cataract were selected from Arapanch village and Sarisha village of South 24 parganas, Sriddha village and Deulihat village of East Midnapur district .

Inclusion criteria

- BCVA < 6/60 in better eye
- Vision loss due to cataract

Exclusion Criteria :

Any other cause of decreased vision i.e.

- Corneal pathology,
- Retinal disorder,
- Maculopathy,
- Optic nv. diseases,
- Any operative / post operative complications

Information regarding education, lifestyle, job, income/ month and number of family members was taken before and after cataract surgery.

Socioeconomic Status Scale of Kuppuswamy (Urban, 1976) Score Card

(A)Education	Score
1. Professional or Honours	7
2. Graduate or Postgraduate	6
3. Intermediate or Post – High-school diploma	5
4. High school certificate	4
5. Middle school certificate	3
6. Primary school or literate	2
7. Illiterate	1
(B) Occupation	
1. Profession	10
2. Semiprofession	6
3. Clerical , shop-owner , farmer	5
4. Skilled worker	4
5. Semiskilled worker	3
6. Unskilled worker	2
7. Unemployed	1
(C) Family income per month (in Rs.)	
1. ≥ 2000	12
2. 1000-1999	10
3. 750-999	6
4. 500-749	4
5. 300-499	3
6. 101-299	2
7. ≤ 100	1

Total Score	Socioeconomic Class
26-29	Upper (1)
16-25	Upper Middle (II)
11-15	Lower Middle (III)
5-10	Upper Lower (IV)
<5	Lower (V)

Results

1. Socioeconomic class improves from *upper lower to lower middle* in male population.

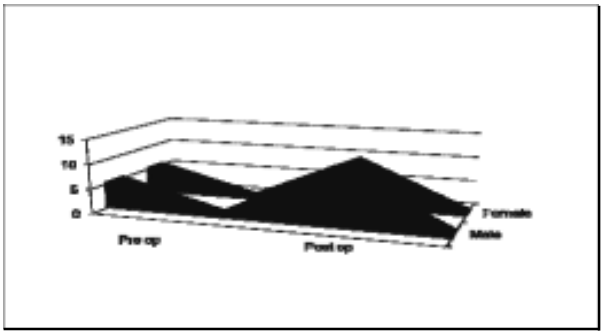

Table 1: Preop Vs Postop Scoring Change

2. Socioeconomic class remains *same* in female population but *significant improvement occurs* in socioeconomical condition.

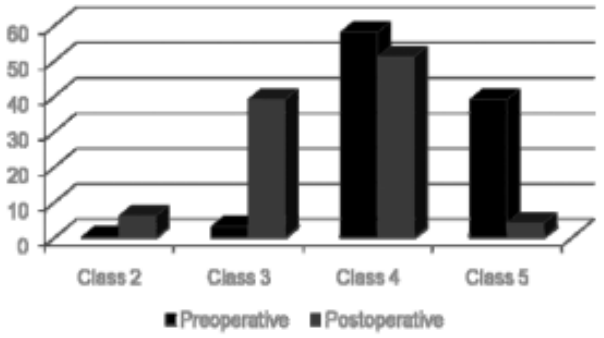

Table 2 Showing Socioeconomic Class Modification

3. Socioeconomic class improves from *upper lower to lower middle in overall* population.

Subject	Avg. Preop Socioeconomic Score	Avg. Postop Socioeconomic Score	Paired T-Test	Change of Socioeconomic Status
Male (N= 259)	5.55	10.94	11.75 (P<0.001)	Upper Lower ▼ Lower Middle
Female (N= 141)	5.48	9.51	7.91 (P<0.001)	Upper Lower ▼ Upper Lower
Total (N=400)	5.53	10.36	13.89 (P<0.001)	Upper Lower ▼ Lower Middle

Discussion

Cataract blindness is the main target of National Program for Control of Blindness in India and most of the resources are diverted for the elimination of the same.[10] A lot of emphasis is laid upon increasing the coverage of cataract surgery. It includes organization of eye camp surgeries by government and non-government organizations. Considering the immense load of cataract blindness and limited resources it is not unlikely that the qualitative aspect could sometimes be ignored. This is particularly true while considering the community at large. In order to assess the quality of cataract intervention for the community at large, sample selection is of great importance. A hospital or camp-based sample can give an estimate of the outcome but it may not be representative of the community or the population at large. The World Health Organization - National Program for Control of blindness (WHO-NPCB) survey (1986-89) suggests that 80.1% of the 22 millions eyes/12 million blind individuals in India are suffering from cataract.[1] The annual output of cataract intervention program is measured only in terms of number and the qualitative aspect is very often ignored. Every one of the 2.2 million cataract surgeries performed each year in India does not change a cataract blind into a sighted person.[2] The indicator commonly used to measure the qualitative output is the success rate, i.e., the percentage of operations that result in restoration of sight in the operated eye in a particular year.[2] Various studies have shown success rates of cataract surgery (best corrected visual acuity = 6/18) range from 28% to 92%. [3,4] Different success rates have been observed in camp and hospital-based surgeries. [4,5]

References

1. Jose R, Bachani D. World Bank Assisted Cataract Blindness Control Project. *Indian J Ophthalmol* 1995;43:35-43.
2. Limburg H, Kumar R, Bachani D. Monitoring and evaluating and cataract intervention in India. *Br J Ophthalmol* 1996;80:951-55
3. Goyal M, Gupta SK, Verma L, Murthi GVS. Socio-demographic parameters of utilization of camp based cataract surgery in rural India. *Asia Pacific J Ophthalmol* 1996;8:15-18
4. Reidy A, Mehra V, Minassian D, Mahashabdc S. Outcome of cataract surgery in central India: A longitudinal follow up study. *Br J Ophthalmol* 1991;75:102-5.

5. Limburg H, Foster A, Vaidyanathan K, Murthy GVS. Monitoring visual outcome of cataract surgery in India. *Bull WHO* 1999:77(6);455-60.

6. Verma L, Gupta SK, Murthi GVS, Goyal M, Pant TD. A follow-up study on visual outcome after camp based intracapsular cataract extraction. *J Tropical Med and Int Health* 1996;1:342-47

7. Hogeweg M, Sapkota YD, Foster A. Acceptability of aphakic correction: Results from Karnali eye camp in Nepal. *Acta Ophthalmol* 1992;70:407-12

8. Pokharel GP, Selvara JS, Ellwein LB. Visual functioning and quality of life outcome among cataract operated and unoperated blind population in Nepal. *Br J Ophthalmol* 1998;82:606-10

9. Dandona L, Dandona R, Naduvilath TJ, McCarty CA, Mandal P, Srinivas M et al. Population based assessment of the outcome of cataract surgery in an urban population in southern India. *Am J Ophthalmol* 1999:127:650-55.

10. Dandona L, Dandona R, Naduvilath TJ, McCarty CA, Srinivas M, Nanda A et al. Is current eye-care-policy focus almost exclusively on cataract adequate to deal with cataract in India. *Lancet* 1998;351:1312-16

11. Murthi VS, Gupta SK, Talwar D. Assessment of cataract surgery in rural India. *Acta Ophthalmol Scand* 1996;74:60-63

12. Zhao J, Sui R, Jia L, Fletcher AE, Ellwein LB. Visual acuity and quality of life outcomes in patients with cataract in Shunyi County, China. *Am J Ophthalmol* 1998;126:515-23.

13. Kuppuswami B. Manual of Socioeconomic scale (Urban), New Delhi, Manasayan, 32, Netaji Subhash Marg, 1981

14. Mahajan BK ,Gupta MC, Textbook of preventive and social medicine. Delhi 2nd edn. Jaypee Brothers, 1995; 134-135

15. Mishra D, Singh H. Kuppuswamy socioeconomic status scale - a Revision. *Indian J Pediatr* 2003; 70 : 273-274.