Evolution of Affordable Quality Cataract Surgery in Leprosy Over Two Decades

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Abstract

Introduction: Cataract surgery in leprosy is a challenge due to stigma, complications and lack of accessibility. Aim of the study is to find most suitable approach for cataract surgery.

Design: Prospective case control study. Cases include cataract surgery in leprosy whereas non-leprosy people undergoing surgery at Camps are taken as controls during 1996 - 2014.

Methods: ICCE, ECCE with/or without IOL, Phaco/SICS with IOL.

Results: Group 1: Non IOL cases (1996 to 2000). Vision improved to 6/12 in 120/160 cases in short term. Gr2: 2005 - 2009: IOL cases (phaco and SICS). 210/ 250 cases 210 had more than 6/12. Worse in “cases” with Phaco. Gr3: 2010 to 2014: SICS with IOL was done in 242 cases. Vision in 235 “cases” > 6/12. Results were similar in both PALs and non-leprosy controls.

Conclusions: Long term follow-up reveals SICS with IOL is the best in leprosy. But quality treatment should include all-round care involving different stake holders as this is a mixed problem: “ophthalmo -socio-economic”. More than a lakh new cases/year is huge burden which can be tackled with locally available resources.

Keywords: Cataract; Leprosy; Eye Camps; Sics

Introduction

Blindness in leprosy occurs mostly due to cataract [1]. Most commonly these are age related as stigma towards leprosy affected people is the toughest barrier for surgical uptake. Besides this, complicated cataract with posterior synechiae or keratopathy is not infrequent in leprosy affected people as they are prone to frequent uveitis [2,3]. Risk of developing complicated cataract has not been measured in leprosy but studies have shown cataract arises three times more frequently when associated with uveitis [4]. Reports from southeast region like India and Philippines has evidenced that Multibacillary leprosy patients on multidrug therapy (MDT) continue to show up signs of chronic uveitis even after “release from treatment (RFT)”. Nearly 1.5 million people all over the world are still on MDT for leprosy [5]. The trends show an overall gradual decline from 265,661 in 2006 to 210,758 in 2015. Marginal increases in new cases were observed in 2015 in Africa from 18,597 (in 2014) to 20,004 (in 2015) and in South East Asian Region from 154,834 (in 2014) to 156,118 (in 2015). SEAR accounted for 74% of the global new case load; this was followed by America region with 14% and Africa Region with 9%. West Pacific Region and Eastern Mediterranean Region contributed 2% and 1% of the global new case load, respectively. The trends in new case detection showed an overall slow decline in all WHO regions.


Cataract in leprosy is a complex issue, all health planners must think over. Firstly, as life expectancy is increasing worldwide prevalence of cataract is expected to rise in both cured (RFT) and uncured leprosy patients in the near future. Age related cataract is normal aging phenomenon which affects both leprosy and non-leprosy patients. It is independent of whether patient’s name is there on the leprosy register or not. There is added risk in multibacillary leprosy patients as they are prone to complicated cataract due to underlying chronic granulomatous uveitis process. Secondly, anaesthetic digits, claw hand, lost digits which often seen in multibacillary leprosy patients substantially downgrade visual quality of life when their eyesight is lost. Thirdly, very poor socio economic conditions and stigma about the disease worldwide make leprosy patients as the least likely receiver of eye care services even for simple refraction and cataract [6].

Ophthalmologists who work with leprosy patients, always debated over the feasibility and safety of using intraocular lenses after cataract surgery [7]. Scenario was even worse during last two decades as the safety of removal of cataract was questioned in this population. This was not totally invalid concern as large numbers of cataract in multibacillary leprosy patients are complicated and most often associated with dense total posterior synechiae and extreme miosis, thus making surgical procedure a difficult task. Increased potential for intraocular inflammation in this population with granulomatous inflammatory response in the body even in cured patients makes the outcome unpredictable. The risk of poor outcome is further aggravated as stigma prevents them to access standard healthcare, so surgery is often contemplated in less favourable ambience. Many cataract surgery studies have highlighted this less favourable outcome after cataract surgery in leprosy [8-15].

During last few years many studies has been done on barriers to cataract surgery uptake in non-leprosy patients. Many issues became apparent in these studies like cost, wage loss, distance to service provider, fear of poor outcome, fear to surgery, sex discrimination and many other factors. The barriers to uptake cataract surgery in leprosy affected population could be different from those in non-leprosy populations and have not been studied systematically before [16-19].

Thus any study targeting increase access to and uptake of cataract surgery will help to plan appropriate intervention which will ultimately lead to efficient blindness control programme in leprosy affected patients.

In this paper we sought to determine the most suitable approach for cataract surgery in leprosy affected people. We also studied and compared the visual outcome in camp based approach among leprosy affected patients and non-leprosy patients.

Methods

Study Design: Prospective case control study.

Study Site: Bokaro district, Jharkhand.

Study Population: Cases include cataract surgery in leprosy affected patients; non-leprosy people undergoing surgery at Camps are taken as controls.

Study duration: Camps conducted between the years 1996 till year 2014.

Materials and Methods: Patients attending yearly camp organized by our hospital are registered and followed up during the successive years. Best corrected visual acuity was recorded by using E chart (Snellen’s).

Visual acuity was measured with Snellen’s E chart.

External examination was done with torch light and portable slit lamp. Undilated Fundus examination along with refraction was done in all the cases. Intracocular pressure was seen digitally and if in doubt Schiotz tonometer was used. Corneal sensation was seen in all the cases with a cotton wisp introduced from below. Fundus examination and lenticular opacity were assessed after dilatation with Tropicamide and phenylephrine combination. Ocular findings were recorded under the following headings: Visual acuity uncorrected and corrected, lid: blinking, Lagsphthalmos, margins, trichiasis. Pupil: size, shape, reaction. Cornea: lusture, opacity, keratitis, sensation. Iris: synchiae, nodules, atrophic patches. Lens: cataract, aphakia or pseudophakia, after-cataract. Demography along with non-ocular clinical data was collected.

All cases were grouped under 3 categories:

1. Group 1 included leprosy cases during 1996 to 2000 (Total 160). 160 controls were taken from non-leprosy cataract surgery camps. ICCE, ECCE with/or without IOL, Phaco/SICS with IOL (Figure 3).
3. Gr3: 2010 to 2014: Small incision cataract surgery with IOL was done in 242 cases (Figure 4).

Statistical evaluation

1. Mean and standard deviation was computed for quantitative variables like age and visual loss or gain.
2. Paired T-test was used to compare Mean ± SD BCVA pre and post cataract surgery.
3. Irrespective of methods used, differences between various parameters among different group or sub groups were considered significant if the p value was < 0.05. If p value was > 0.05 then the differences were considered insignificant.

Results

- **Group 1:** Non IOL cases (1996 to 2000). Vision improved to 6/12 in 120/160 cases in short term.
- **Group 2:** 2005 - 2009: IOL Cases (phaco and SICS). 210/250 cases 210 had more than 6/12. Worse in "cases" with Phaco.
- **Group 3:** 2010 to 2014: SICS with IOL was done in 242 cases. Vision in 235 "cases" > 6/12. Results were similar in both PALs and non-leprosy controls.

Figure 5: Graph showing outcome between 1996 - 2000.

Figure 6: Graph showing outcome between 2005 - 2009.
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<table>
<thead>
<tr>
<th>Type</th>
<th>Year</th>
<th>Total cases</th>
<th>Improved vision</th>
</tr>
</thead>
<tbody>
<tr>
<td>gr 1</td>
<td>Non IOL</td>
<td>1996 - 2000</td>
<td>160</td>
</tr>
<tr>
<td>gr 2</td>
<td>IOL cases</td>
<td>2005 - 2009</td>
<td>250</td>
</tr>
<tr>
<td>gr 3</td>
<td>SICS+ IOL</td>
<td>2010 - 2014</td>
<td>242</td>
</tr>
</tbody>
</table>

*Table 1: Visual improvement in 3 groups.*

**Figure 7:** Graph showing outcome between 2010 - 2014.

**Figure 8:** Comparative visual outcome in different groups.

Discussion

In our study it was observed that visual outcome has improved in majority of patients after cataract surgery. Long term follow-up reveals SICS with IOL has shown better outcome in leprosy. The main finding of this study is the fast rate of visual recovery after SICS with close to half of the patients having uncorrected visual acuity of 6/18 or better five days after surgery.

Cataract constitutes almost half of the causes of diminution of vision in leprosy affected people which not only increase their financial burden but also is major cause of their disability.

This study conducted over 18 years of campaign in our district demonstrated by the number of camps held, patients treated, surgeries performed, IOLs implanted and spectacle distributed clearly shows improvement in quality of life of leprosy affected people after camp based approach.

The number of leprosy affected people with decreased vision in our country is huge but the resources and facilities fell short of need.

In addition to restoration of vision in leprosy affected people bringing up infrastructure, training local workers, motivation and encouragement of government and non-government sectors as well as creating public awareness of factors leading to blindness and disability are major contributors in improving quality of life of leprosy affected people.

Conclusions

Long term follow-up reveals SICS with IOL is the best in leprosy. But quality treatment should include all-round care involving different stake holders as this is a mixed problem: “ophthalo-socio-economic”. More than a lakh new cases/year is huge burden which can be tackled with locally available resources.

Bibliography


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