Country-wide Monitoring of Cataract Surgical Outcomes

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Introduction

TheLionsSightFirstEyeHospital(LSFEH) in Lilongwe, Malawi, participated in the initial study to develop monitoring systems for cataract outcome. The pilot study took place between 1 June and 31 December, 2000. All surgery was done at the Lions SightFirst Hospital, Lilongwe. The number of cataract operations recorded in the study was 454.

However, the proportion of patients seen for review was 89%, mainly because of active follow-up of those patients who did not come for review on their own. Details are given in Table 1.

No difference in visual outcome could be demonstrated in patients who returned voluntarily for review and those who did not come and were visited at home. Distance and cost of transport are probably the main barriers preventing patients from returning for follow-up. The overall number of cataract operations in Malawi by Service Area and Hospital Facility are given in Table 2.

Malawi Eye Care Programme

Based on this experience, the Malawi Eye Care Programme (MECP), responsible for the majority of cataract operations in the country, decided to establish a sustainable system for routine monitoring of visual outcome after cataract surgery at all surgical centres. Sight Savers International is supporting the establishment of this monitoring system. MECP conducts cataract operations in well-equipped hospitals as well as satellite hospitals, with consultants, residents and cataract surgeons, mainly through referrals from diagnostic eye camps. The main surgical intervention is extracapsular cataract extraction with posterior chamber IOLs. During the pilot study there were 2 ophthalmologists and 3 cataract surgeons involved in the programme. Now, there are 6 ophthalmologists and 2 cataract surgeons in the country-wide monitoring of cataract outcomes.

Prior to implementation, all involved staff of all the centres where cataract surgery is performed have undergone training in data collection and data entry. Patient personal data, pre-operative examination, surgery and visual acuity at discharge are written on a standardised cataract surgical record form and entered

into a computer, using a specially developed data entry programme. Subsequent visual acuity at post-operative follow-up visits are added to the record and entered into the computer as well. The computer produces standardised outcome reports.

Data is entered by one dedicated ophthalmic clinical officer. The computer is programmed in such a way that it can detect double entry, check on the frequency of post-operative follow-up and, if the completed form is incorrectly completed, it rejects the data.

Cataract Surgery in Lilongwe, Mzuzu and Blantyre

On 1 June 2002 the LSFEH began routine monitoring of cataract operations. The centres in Mzuzu and Blantyre followed by October 2002. A standard cataract surgical record form is completed for each operated eye and post-operative visual acuity is to be measured at discharge, at 1-3 weeks, 4-11 weeks and 12 or more weeks post-operatively. Patients are encouraged to come by providing them with anti-inflammatory eye drops and ready-made reading glasses at review. However, home visits to assess visual outcome will not be possible and the proportion of patients coming for review is expected to be less than in the initial study.

The cataract surgeons are required to perform a minimum of 100 cataract operations independently, and with each visual outcome is monitored. This ensures their compliance in completing the cataract surgical records. So far, the compliance from ophthalmologists, cataract surgeons and ophthalmic clinical officers reviewing operated patients at the OPD has been good.

Four ophthalmic clinic officers have been assigned to each of the three centres to ensure that post-operative appointments are arranged before the patient is discharged, that patients coming for review are seen without delays and that their data are entered into the computer.

Table 1: Outcomes by Post-operative Period in LSFEH, 2000

		Discharge	1–7 weeks		8–25 weeks		26+ weeks	
		n=454	n=257		n=221		n=361	
			pres.	best	pres.	best	pres.	best
6/6-6/	18	38.5	66.5	80.2	75.1	86.9	84.8	91.1
<6/18-	-6/60	45.4	26.8	15.6	17.6	9.5	7.5	4.2
<6/60		16.1	6.6	4.3	7.2	3.6	7.8	4.7

Table 2: The Number of Cataract Operations in Malawi by Service Area and Hospital Facility

Service Area/Hospital	2000	2001	2002	2003 Target
*LSFEH	1070	1410	1167	1500
QECH	608	635	513	1000
EHSA-North	349	644	729	850
EHSA-Centre	-	-	123	500
EHSA-L/shore	662	650	984	1000
EHSA-South	414	733	894	1000
EHSA-L/shire	257	284	396	500
National	3360	4356	4806	6350
National-CSR	336	436	481	635
% of IOL	85	90	96	98

^{*} Initial study was done in this Hospital

Monitoring Cataract Outcomes

A monitoring committee, consisting of 4 eye surgeons, will review the visual outcome analysis from Lilongwe and Mzuzu. They will review their own individual results and those from the cataract surgeons on a quarterly basis and present these results in a meeting with all ophthalmologists and cataract surgeons.

However, methodology used to monitor performance over time is for each surgeon. It is not to be used to compare one surgeon against another or one hospital against another. Each surgeon can access the cases

Table 3: Visual Outcomes at Discharge per Group of 100 Operated Eyes

Case numbers	Good N = %	Borderline N = %	Poor N = %
1–100	48	44	8
101–200	47	32	21
201–300	28	62	10
301-400	13	58	29
401–500	14	58	28
Total N	150	254	96
Total %	30.0%	50.8%	19.2%

which he/she has operated on which have been recorded in the computer and review them to find out the causes of poor outcome.

In Blantyre, the resident ophthalmologist will review the outcome analysis and present the results at a monitoring committee meeting for discussion.

Results

Between April 3 and October 30, 2002, 542 cataract operations from the three hospitals have been recorded in the system. This is less than normal because the operation theatre in Lilongwe was under renovation for two months. In 537 (99%) of all operated eyes an IOL was implanted. So far 31 patients have been seen 1-3 weeks after surgery, 6 after 4-11 weeks and one after 12 weeks. Despite the incentives, the follow-up rate is far less than during the initial pilot study. Although the pilot study indicated no difference in outcome between patients who came on their own and those visited at home, the proportion recorded at follow-up is so low that we only report outcome at discharge here.

The proportion of cases with good outcome (VA 6/18 or better) at discharge shows a declining trend and the proportion with poor outcomes increases (Table 3). Also, the proportion of complications increases (Table 4), but the complication rate for the last 100 operations (401–500) improves to 11%. Analysis of the Annual Report shows that these trends are

Table 4: Peri-operative Complications Per Group of 100 Operated Eyes

Case numbers	No complications N = %	Capsule rupture N = %	Vitreous loss N = %	Corneal oedema N = %	Other complications N = %
1–100	93	1	4	0	2
101–200	91	1	5	1	2
201-300	90	3	2	0	5
301-400	85	4	6	0	5
401–500	89	1	0	3	7
Total N	448	10	17	4	21
Total %	89.6%	2.0%	3.4%	0.8%	4.2%

mainly on account of two large eye camps in July and October. In July, surgeons were few and case selection was mainly done by ophthalmic assistants. This would indicate that 'selection' is the major cause of poor outcome in July.

In the October eye camp, space was short and patients were discharged on the first day post-operatively, instead of 2-3 days post-operatively. There were more cases with corneal oedema and uveitis, but it is unlikely that this will affect long-term outcome.

Discussion: Problems and Solutions

The main areas which are likely to cause poor outcome are in case selection, surgical complications, use of standard intraocular lenses (IOL) instead of IOLs determined by biometry, lack of equipment to deal with intra-operative complications, such as vitreous loss and lack of post-operative anti-inflammatory eye medication.

The initial study was done in one hospital and so follow-up was not much of a problem with patients who were usually town dwellers. However, for eye camp patients who came from far away rural areas, follow-up was a big problem because of the many barriers that exist, the major one being poverty. Very few came back for follow-up despite offered incentives - such as refund of bus fares, free eye drops, etc. In the initial study all the post-operative patients who did not come back were actively assessed in their community by

ophthalmic clinical officers (OCOs). This was a pilot study with its own budget and so money was available. But in the countrywide monitoring, active follow-up is not affordable. The best we can offer is to give the incentive of a bottle of eye drops to all post-operative patients who return for postoperative assessment. The other problem which has arisen because of country-wide monitoring is the assessment of visual acuity at the right time, which has usually been after the third post-operative day. With the camp patients this is not possible because of large numbers with few staff at satellite hospitals. What has happened is that patients were being assessed on day one post-operatively. This has affected visual outcome records because of residual eye inflammation and some epithelial keratopathy/oedema still present.

In the first eye camp the proportion of cases with poor outcome due to poor selection was rather high. This was attributed to pre-operative selection being done by OCOs only. A solution would be to ensure that all patients are seen by an ophthalmologist or cataract surgeon before surgery.

The eye department has a standard protocol and discharges patients on day 3 when visual acuity is recorded. The surgical procedure has also been standardised. In groups 301–400 and 401–500 most cases of poor outcome were attributed to surgery, particularly post-operative corneal oedema. The team will be looking at this issue and will discuss solutions to prevent subsequent problems.

Because of these experiences during the early stages of the programme certain practical measures have been taken. Discussions with Directors of District Hospitals have resulted in agreement to keep patients post-operatively for at least 3 days. Further, the eye camp team has been increased to include 2 dedicated OCOs to assess post-operative cases daily and ensure that the forms are properly completed. Besides incentives, the eye camp teams will combine eye camp screening with assessment of previous post-operative patients where applicable.

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