

Sir,
Can phaco be a cost-effective solution to cataract blindness? Costs and outcomes in Nepal

Most of the 18 million people blinded by cataract¹ live in developing countries, where many cataracts are unsuitable for phacoemulsification, and few patients can afford it. However, there is growing demand from both patients and ophthalmologists, so phaco will become more common. This could lead to fewer cataract operations, as the average cost of surgery rises. Because of these concerns we wanted to determine whether high volume, low-cost phacoemulsification gives acceptable outcomes in selected patients.

Case report

This prospective non-randomised study was conducted at Sagarmatha Choudhary Eye Hospital (SCEH) in Lahan, Nepal, which serves patients from east Nepal and northeast India. SCEH performs about 50 000 cataract operations per year.

Between January 2005 and December 2007, 8955 patients underwent phaco surgery by a single surgeon (AH). Overall, 8410 had a rigid intraocular lens (IOL) and 545 had a foldable IOL. Patients having foldable IOLs were less likely to be blind in the affected eye ($\chi^2 = 51.74, P < 0.0001$), and more likely to be male ($\chi^2 = 60.8, P < 0.0001$).

A superior sclero-corneal tunnel was dissected, using a 2.5 mm diamond keratome. Following phacoemulsification with a phaco-chop technique, the scleral tunnel was widened to 5 mm and a 5 mm optic single-piece PMMA IOL (IOCare, Vadodara, Gujarat, India) was implanted. For the foldable IOL the incision was enlarged to 3 mm.

On the first post-operation day, the uncorrected visual acuity (UCVA) was recorded and the eye was examined.

Posterior capsule rupture occurred in 42 (0.5%) eyes having a rigid IOL and one eye with a foldable IOL. One day after surgery, 34 (0.4%) eyes had corneal oedema and one eye had a hyphaema.

A total of 31.4% of eyes with a foldable IOL had UCVA of 6/9 or better compared with 23.1% (see Table 1) of eyes with a rigid IOL ($\chi^2 = 19.03, P < 0.0001$); however, there was no difference in the proportion achieving 6/18 or better ($\chi^2 = 0, P = 0.98$).

Overall, 78 eyes had a poor outcome, because of pre-existing retinal disease in 42 eyes, surgical complications in 34 eyes, and refractive error in two eyes. Four eyes with foldable IOLs had a poor outcome, because of co-morbidity in two eyes, and surgical complications in two eyes.

The average surgical time was 5.1 min for rigid IOL and 5.6 min for foldable IOL. With a single-piece PMMA IOL (US\$1.94), the cost for consumables was US\$ 4.28 per operation. The use of a foldable IOL (US\$16.50) more than trebles the cost.

Very few of the destitute patients attending SCEH return for follow-up. By limiting follow-up to 1 day, we included almost all patients.

Comment

Although eyes with foldable IOL's were more likely to see 6/9 or better, there was no difference in the proportion of eyes achieving 6/18 or better.

Table 1 Visual outcome: uncorrected visual acuity on the first post-operation day

	Phaco and PMMA IOL (n = 8410)		Phaco and foldable IOL (n = 545)	
	n	%	n	%
6/6	231	2.8	34	6.3
6/9	1711	20.3	137	25.1
6/12	2549	30.3	158	29.0
6/18	2555	30.4	127	23.3
Total 6/18 +	7046	83.8	456	83.7
<6/18-6/60	1283	15.3	85	15.6
<6/60	78	0.9	4	0.7
Unknown	3			
Total	8410		545	

Using a PMMA IOL, the cost of consumables for phaco surgery is about USD 0.50 higher than SICS, due to increased use of viscoelastics and irrigating solution. Our findings are similar to Gogate *et al.*² If the cost of the phacoemulsifier is included, the cost per operation depends on the machine's lifespan, and the surgical volume.

An increasing number of patients from rural areas of developing countries are presenting earlier, with softer nuclei. They are younger, and have higher visual expectations. Ophthalmologists must choose which operation will be best for the patient and affordable for the community. This requires a 'complete cataract surgeon'³ able to perform ECCE, SICS, and phacoemulsification.

Conflict of interest

The authors declare no conflict of interest.

References

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