TO Sanjiv Desai MD, the problem is as simple as it is stark: "India has the largest blind population of any country in the world.

An estimated 8.9 million blind people, or nearly one-quarter of the world’s blind population, live in India. More than half could be cured with cataract surgery. But many live in poverty in remote rural villages.

Dr Desai and colleagues at the Tarabai Desai Eye Hospital and Research Centre in Jodhpur, India, are among the many local and international groups addressing the problem by organising eye camps. Each year thousands in India and across the globe benefit from the high-volume, low-cost cataract procedures provided by travelling eye clinics.

But Dr Desai believes the traditional eye-camp approach is not as effective as it could be. Its emphasis on treating as many patients as possible at the lowest cost means many receive traditional extracapsular procedures – complete with large incisions and stitches. This means longer recovery time, and increased infection and wound rupture rates. That most patients have no access to follow-up or emergency care, compounds the problem.

The result: “Surgical complications are very common in eye camps,” Dr Desai told a symposium at the XXIV ESCRS Congress. “Poor results lead to more blindness.” Even those who recover normally often have poor vision from induced astigmatism, he said.

Phaco camp

Dr Desai believes the way forward is to shift the emphasis from high volume to high quality. So he and his colleagues devised a way to bring the benefits of advanced phaco surgery to the cataract eye camp.

Because of the cost of equipment and consumed supplies, phaco has long been considered unaffordable for use with impoverished populations. Dr Desai streamlined procedures for maximum efficiency and cut supply costs. His initial test of 75 eyes shows that the method brought per-case treatment costs to within 10 per cent and 15 per cent of traditional ECCE – and dramatically reduced complications and poor visual outcomes.

Like a traditional eye camp, phaco camp treats large numbers of patients in an assembly-line fashion. Unlike many eye camps, the clinic does not go to the patient. Instead, patients are bussed to the Tarabai hospital, where they stay for a couple of days.

“The quality of the surgical outcomes outweighs the cost. Not every patient can receive a phaco procedure, but it is a viable option”

Dr Desai calls this approach “inreach,” as opposed to the traditional “outreach.” It is required because it would be impossible to move the phaco equipment and all its support out to remote locations. Large operating rooms and recovery areas are also needed to efficiently handle high volume. A second requirement is that the surgeons be highly skilled and experienced in phaco techniques.

Quick turnaround is essential to keep costs down, so the operating room is set up with several stations so surgeons can move from one patient to the next.

Surgeons start with a 3.2mm clear corneal incision and remove the cataract. In a trade off for cost, the incision is enlarged to 5.0mm to accommodate insertion of a non-foldable lens.

Dr Desai reported that operating time for the 75-eye series ranged from eight minutes to 20 minutes, averaging about 12.3 minutes from corneal incision to subconjunctival antibiotic injection. Subchoroidal haemorrhage was the most common complication, but only a few were experienced. No postoperative infections were seen and visual outcomes were much better than for ECCE, Desai said – 97 per cent achieved a best-corrected visual acuity of better than 6/18. On average, the cost of the phaco procedure was about 3.50 more than an ECCE – 10 per cent achieved a best-corrected visual acuity of better than 6/18.

These results demonstrate the phaco can be effective for eye camp use, Dr Desai said.

“The quality of the surgical outcomes outweighs the cost. Not every patient can receive a phaco procedure, but it is a viable option.”

Sutureless small incision

Poor visual outcomes and complications from sutured incisions in eye camps are also a big concern for Mohamed Awadalla MD, of Magrabi Eye Hospital, Cairo, Egypt. He took another approach that has shown great promise in underdeveloped countries – sutureless small incision cataract surgery. His study of 352 eyes showed that a sutureless technique not only improved visual outcomes, it cost less due to reduced need for follow-up.

Dr Awadalla and colleagues operated on 152 eyes with an extracapsular approach and 173 with a sutureless approach. The sutureless approach featured a 6.5mm scleral tunnel incision and a sideport for irrigation. Lens nuclei were freed using hydrodissection and typically expressed whole through the tunnel incision. Non-foldable IOLs were inserted, and no sutures were required.

While no significant differences were detected for intraoperative complications or post-operative infections, the sutureless group had only eight capsule ruptures compared with 11 for the smaller extracapsular group. The sutureless group also showed less cornea oedema one day after surgery.

Visually, the sutureless group averaged a mean astigmatism of 1.17 D compared with 1.97 D for the ECCE group. Uncorrected visual acuity at six weeks was better than 6/18 for 82 per cent of the sutureless group and 73 per cent of the extracapsular group; while 98 per cent and 94 per cent respectively achieved a best corrected acuity of 6/18 or better.

Dr Awadalla is among a growing wave of surgeons in developing countries using the sutureless small incision approach. While it requires significant skill and can be difficult to convert if there are problems, the reduction in eye trauma and complications associated with sutures increasingly makes it the procedure of choice.

“It is superior to the conventional cataract procedure. We’re seeing a lot of our patients running around without spectacles now,” Dr Awadalla said.

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