Initial Experience of Cataract Surgery under Surface Anaesthesia

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A prospective study was performed to see if the patients in our set up could safely and reliably be operated upon for cataract extraction under surface anaesthesia alone. This initial experience suggests that surface anaesthesia alone is suitable for carefully selected patients, while others tend to face undue anxiety, resulting in excessive ocular movements and eye lid squeezing during surgery.
Key words: Cataract surgery, anaesthesia

Local anaesthesia is the universally accepted anaesthesia technique for performing the cataract surgery in adult patients. We performed this mini series to see if the patients presenting in the general out patient department of our hospital could be operated upon for their cataract extraction under surface anaesthesia alone.

Cataract surgery is indeed the most commonly performed surgical procedure in ophthalmology. Various aspects of the anaesthesia and surgical techniques are constantly under review to improve the surgical results.

The cataract surgery is a fairly safe procedure and the serious complications like endophthalmitis and retinal detachment are very rare. More attention is now being paid to the finer aspects like controlling the post-operative astigmatism, posterior capsular opacification, type of local anaesthesia, and theatre time used.

This study was performed to observe the patient behaviour when they underwent cataract surgery under the surface anaesthesia alone. The other parameters observed were the need for additional local anaesthetic, and the reduction in the theatre time for cataract surgery.

Patients and methods:

A prospective study was done to see the efficacy of surface anaesthesia alone for performing the cataract surgery. Twenty patients requiring standard extra capsular cataract extraction with intra-ocular lens implantation were included in this study. All of our patients included in this study presented between April 2004 and January 2005. We included only those patients who were to have their cataract surgery in the second eye. The eyes with other complicating factors like glaucoma, uveitis, previous surgery, and a history of significant ocular trauma were not included in this study. The age of the patients ranged from forty years to seventy years, the average age being sixty three years.

Each patient had a detailed eye examination performed before the booking for surgery. Any associated general medical conditions like diabetes mellitus and hypertension were controlled by appropriate medicines. Details of the procedure were explained to the patients and informed consent was obtained before they were scheduled to have their cataract surgery. A special consent was also obtained regarding the use of surface anaesthesia alone. The patients were reassured that standby facility for additional local anaesthesia, sedation, or general anaesthesia would be available if required.

A post-operative follow-up examination was arranged on the first post-operative day, after one week, one month, two months, three months, and six months. Topical steroid and antibiotic drops were continued till the anterior chamber became free of all inflammatory activity.

The eye examination on each visit included the recording of the visual acuity, anterior chamber activity, and intra-ocular pressure, keratometry, and refraction.

Surgical technique:

Local anaesthesia was used in all of our patients in this series. It was achieved with topical surface anaesthetic drops starting 15 minutes before the surgery and being repeated every 3-5 minutes, as well as during surgery as often as required. Mydriasis was achieved with topical Tropicamide and phenylephrine drops. Topical non-steroidal anti-inflammatory drops were also used to maintain the mydriasis during surgery.

No bridal suture was used. A three-stepped clear corneal incision was used for all the patients in this study.

After giving the initial partial-thickness corneal incision, the anterior capsulotomy was performed by a continuous curvilinear capsulotomy technique. Care was taken not to touch the iris at any stage. The partial thickness clear corneal or scleral incision was converted to full thickness corneal incision in two steps, initially going forward parallel to the plane of the cornea and then entering the anterior chamber. This generated the three-stepped incision. Corneal scissors were used to extend the incision to the required size so that the nucleus could be extracted through this incision, using a wire vectus. The residual soft matter was aspirated using manual irrigation-aspiration canula. A visco-elastic was used to maintain the anterior chamber while a PMMA lens was implanted in the bag. The corneal incision was closed using 10/O Nylon sutures.

The visco-elastic was aspirated out from the anterior chamber and replaced with balanced salt solution. A sub-conjunctival injection of gentamycin and dexamethasone was given and aseptic dressing done.

Results:

All of our patients had excellent results after the cataract surgery. None of our patients developed any serious complication like post-operative endophthalmitis or retinal detachment.

The level of aneasthesia was quite satisfactory in the initial stages. The patients were instructed to report any pain, and additional surface anaesthetic drops were instilled when they did so. Most of our patients required some additional surface anaesthesia at the stage of the closure of the corneal incision. The subconjunctival injection of gentamycin and dexamethasone was reported to be painful by all the patients.

Five patients (25%) required additional subconjunctival anaesthesia injection. These patients were squeezing their eye lids and were moving their eyes too much before receiving the subconjunctival anaesthetic injection. Ten patients (50%) reported that their previous cataract surgery in the other eye was less painful but the pain during this surgery was not too much. The other ten patients did not feel that this surgery was more painful than the last one which was performed under retrobulbar or peribulbar anaesthesia.

None of our patients required general anaesthesia. The theatre time was reduced by five to ten minutes in each patient. Most of our patient reported that they could see the surgical instrument during the surgery. None of the patients reported any diplopia or ptosis on the first post operative day

Discussion:

Cataract surgery is increasingly being performed under topical anaesthesia. Several studies have demonstrated that it provides satisfactory analgesia, comparable with regional blocks.[1-11] How ever we are still using retrobulbar or peribulbar anaesthesia in most of our patients. This study was designed to see how our patients behaved during their cataract surgery with surface anaesthesia alone. Some degree of anxiety is inevitable before the surgery. Only five patients required additional subconjunctival anaesthetic injection. Most of our patients did not report any significant pain during the surgery.

Since optic nerve function is not affected by topical anaesthesia, patients may have greater visual awareness during surgery with this method of anaesthesia compared with regional blocks[12-14].

Topical anaesthesia for cataract surgery is superior to regional anaesthesia. It eliminates the risk of damage to the globe or orbital contents associated with retrobulbar and, less commonly, peribulbar injections[15-21]. It allows rapid visual rehabilitation following surgery with the potential for good vision in the immediate postoperative period[22, 23]. There is no postoperative ptosis or diplopia[22]. We conclude that topical anaesthesia is a superior and safer option for performing the cataract surgery in selected cases.

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