



PERIBULBAR INJECTION AS ANESTHESIA FOR CATARACT SURGERY & PAIN ASSOCIATED WITH IT PREOPERATIVELY

Ophthalmology

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ABSTRACT

BACKGROUND: Cataract surgery is almost exclusively performed under local anesthesia. Patients admitted for cataract surgery under local anesthesia by peribulbar injection have a more fear of pain rather than surgery itself. An essential prerequisite of successful pain management is adequate assessment of pain by using validated tools which are appropriate to the population or individual.

AIMS: The objective of the study was to find out the threshold of pain associated with the peribulbar injection as local anesthesia for cataract surgery.

MATERIALS & METHODS: The present cross-sectional study involved 120 patients who underwent elective cataract surgery were administered a peribulbar block. Before injection all patients were briefed about the procedure, the degree of pain that they may experience & were asked to grade the pain of peribulbar anesthetic injection, using a Visual Analogue Scale (VAS).

RESULTS: Total of 120 patients were participated in the study. Maximum patients i.e. 65% were in age group of ≥ 61 years. Males (57.5%) outnumbered females in the present study. Regarding degree of pain 9.2% patients didn't feel any pain while 81.7% felt just needle prick lead to heaviness or mild pain. Only small percentage of patients i.e. 9.1% had injection associated moderate to severe pain. Other complications included chemosis in 4.2%, subconjunctival haemorrhage in 1.7% cases that didn't hinder surgery. No other adverse local reaction or systemic complications were observed.

CONCLUSION: Focus of the study was on the degree of pain associated with peribulbar injection for cataract surgery & it has been concluded that the peribulbar anesthesia for cataract surgery is safe and highly effective with much less pain than actually patient have in their mind.

KEYWORDS

Pain threshold, Peribulbar anesthesia, Visual Analogue scale

INTRODUCTION:

Clouding of the lens in the eye is cataract which is removed by surgery, commonly occurs due to increasing age. Cataract lens from the eye can be removed by manual small incision cataract surgery (MSICS) through a small incision by various methods of nucleus delivery.^[1] Cataract surgery is almost exclusively performed under local anesthesia. Various local anesthetic techniques have evolved including akinetic (needle-cannula-based technique) & non-akinetic (topical anesthesia) techniques. Regional anesthesia for eye surgery has traditionally consisted of retro bulbar block, peribulbar block, a facial nerve block and intravenous sedation.^[2-4] Various objectives of anesthesia in intraocular surgery are akinesia of globe and lids, anesthesia of globe and lids, control of intraocular pressure, control of systemic blood pressure, relaxation of patient, smooth emergence & adequate post operative analgesia. The effectiveness of regional block for cataract surgery has traditionally been assessed by describing the completeness and adequacy of globe akinesia (prevention of eye movement) and pain control. Advantages of the peribulbar technique include minimum risk of globe, optic nerve & artery penetration and less pain on injection. The pain often experienced during peribulbar injection for local anesthesia is partly related to the needle prick, partly to the solution injected & it's PH (true for solutions with adrenaline).^[5] The present study was conducted to find out the threshold of pain associated with the anesthetic peribulbar injection for cataract surgery.

MATERIAL AND METHOD:

The present study involved 120 patients who underwent elective cataract surgery in the tertiary care hospital Jammu. The informed written consent from all the patients were undertaken before inclusion in the current study. Before injection all patients were briefed about the procedure & counseled regarding the degree of pain that they may experience. Patients were given a questionnaire explained in their local language & were asked to grade the pain in a visual analogue scale (VAS). The Visual Analogue Scale (VAS) was used to grade the intensity of pain or how much pain the patient was feeling. VAS is a straight line marked from 0 to 10, with the left end of the line '0' representing no pain and the right end of the line '10' representing the worst pain. Patients are asked to mark on the line where they think their pain is.^[6]

INCLUSION CRITERIA:

- Individuals of both sexes.
- Diagnosed with cataracts undergoing elective cataract surgery.

EXCLUSION CRITERIA:

- Uncooperative patients.
- Any other contraindication of peribulbar block.
- Patient refused to participate in study

All participants undergoing elective cataract surgery were administered a peribulbar block. It was given at the junction of middle and lateral third of lower lid using 5ml syringe (23 gauge). Local anesthetic solution used was a mixture of 2% Lignocaine and 0.5% bupivacaine with 5 IU/ml of hyaluronidase. The anesthetic volume ranged from 5 to 10 ml.

TECHNIQUES OF PERIBULBAR BLOCK:

- The patient should be in supine position and looking directly ahead when peribulbar block is performed. After topical anesthesia of conjunctiva an inferotemporal injection is given half way between the lateral canthus & the lateral limbus.
- The needle is advanced slowly under the globe parallel to the orbital floor & when it passes the equator of the eye it is directed slightly medial (20 degree) and cephalad (10 degree), injecting 5ml local anaesthetic solution.
- The needle should be stopping immediately, if there is tugging movement of the globe which indicates snagging of needle on sclera or extra ocular muscle.
- In peribulbar block the needle does not penetrate the cone formed by extra-ocular muscles, as in retro bulbar block.
- If there is severe pain or resistance to injection either of which indicates injection to globe.

STATISTICAL ANALYSIS:

Analysis of data was done using statistical software MS Excel / SPSS version 17.0 for windows. Data presented as percentage (%) as discussed appropriate for quantitative and qualitative variables.

OBSERVATION & RESULTS:

Table no.1 & 2 shows maximum number of patients were in age group

of ≥ 61 years i.e. 65% while males (57.5%) outnumbered females in the present study.

Table no. 3 reveals visual analogue scale which shows that regarding degree of pain 9.2% patients didn't felt any pain while 81.7% felt just needle prick lead to heaviness or mild pain. Only small percentage of patients i.e. 9.1% had injection associated moderate to severe pain.

Patients having their first surgery, were more apprehensive especially about the injection associated pain while those with history of previous surgery were calm, confident & claimed that they felt no/mild pain at all. Those claimed that they had no pain at all marked '0' on visual analogue scale (VAS). 56.7% patients graded their pain '1' on visual analogue scale (VAS), when they were asked to explain, they had just needle prick sensation. 19.2% felt heaviness and graded their pain '2' while 5.8% had mild pain so marked '3' on visual analogue scale (VAS). Only 9.1% had moderate to worst pain and graded their pain from '4' to '8' on visual analogue scale (VAS). Hence most of our patients i.e. 90.9% claimed (Table 3) no to mild pain i.e. '0'-'3' on visual analogue scale (VAS).

DISCUSSION:

Cataract surgery is almost exclusively performed as an out-patient procedure under local anesthesia.^[7] The peribulbar block is one of the regional anesthesia technique used for providing anesthesia & akinesia in ophthalmic surgery. Peribulbar block is frequently preferred for its low rate of complications despite its disadvantages such as requiring more than one injection & a larger volume of local anesthetic agent. Although peribulbar block is theoretically considered to be much safer & easier to apply, some cases of brainstem anesthesia after peribulbar block have been reported in the literature. Various complications are venous orbital hemorrhage, arterial orbital hemorrhage, oculocardiac incidence, allergic reaction, ophthalmoplegia-direct damage to the extraocular muscle or its nerve, globe perforation & optic nerve damage.^[5] The use of sedation with local anesthesia has fallen from 45% in 1991 to 6% in 1996 & the use of local anesthesia has risen from around 20% in 1991 to over 75% in 1996 and 86% in 1997.^[7] Local anesthetic used for nerve block must cross perineural sheath and nerve membrane. These structures are permeable to these agents only in non ionized form. Alkalinisation of anesthesia agent also contributes to the reduction of pain as - adjustment of pH towards 7.0-7.4 reduces direct tissue irritation, the increased relative concentration of non ionised form allows for a more rapid diffusion through tissues and results in immediate nerve blockade & nociceptor receptors may be less sensitive to non ionised form.^[8]

In the present study, total of 120 patients were participated. Maximum patients were in age group of ≥ 61 years i.e. 65%. This might be due to reason that senile cataract is seen more commonly in elderly who seek medical attention only when vision loss disturbs their routine works. Males (57.5%) outnumbered females in the present study. Gupta I et al in a study on 100 patients found that 60% of patients were males.^[5] In another study by Syed ZU et al on 300 patients, males i.e. 60% outnumbered females.^[9]

Present study reveals visual analogue scale which shows that regarding degree of pain 9.2% patients didn't felt any pain while 81.7% felt just needle prick lead to heaviness or mild pain. Only small percentage of patients i.e. 9.1% had injection associated moderate to severe pain. Patients having their first surgery, were more apprehensive especially about the injection associated pain while those with history of previous surgery were calm, confident and claimed that they felt no/mild pain at all. Hence most of our patients i.e. 90.9% claimed (Table 3) no to mild pain i.e. '0'-'3' on visual analogue scale (VAS). Gupta I et al in a study on 100 patients found that most of patients in their study i.e. 92% patients claimed no to mild pain i.e. '0'-'3' on visual analogue scale (VAS).^[5] Syed ZU et al in their study claimed NO to mild pain in 84% patients i.e. '0'-'3' on VAS.^[9]

The pain experienced during injection is also related to the temperature of injectate and speed of delivery of the solution. Alkalinisation of local anaesthetic agent with bicarbonate increases the amount of non ionised form, lipid solubility, faster penetration in the membrane and tissues.^[10]

CONCLUSION:

Focus of the study was on the degree of pain associated with peribulbar injection for cataract surgery & it has been concluded that the peribulbar injection as anesthesia for cataract surgery is safe and

highly effective with much less pain than actually patient have in their mind.

RECOMMENDATIONS:

Authors suggests proper counseling regarding peribulbar injection as counseling improves patient satisfaction, lowers anxiety and hence pain perception. Brief patients about the peribulbar injection, its administration and reassure that the degree of pain they will have with peribulbar injection & cataract surgery is much less than what they actually have in their mind and fear of.

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DECLARATION:

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Conflict of interest: None declared

Table No. 1 Age Distribution Of Studied Patients.

Age group(in years)	Number of patients	%age
≤ 50	17	14.2
51-60	25	20.8
≥ 61	78	65.0
Total	120	100

Table No. 2 Sex Distribution Of Studied Patients

Sex	Number of patients	%age
Male	69	57.5
Female	51	42.5
Total	120	100

Table No. 3 Peribulbar Injection Pain Frequency Distribution In Visual Analogue Scale Among Studied Patients.

Analogue scale	Number of patients	%age
0.00	11	9.2
1.00	68	56.7
2.00	23	19.2
3.00	7	5.8
4.00	4	3.3
5.00	3	2.5
6.00	2	1.7
7.00	1	0.8
8.00	1	0.8
9.00	0	0
10.00	0	0
Total	120	100

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