

Original Research Article**ANESTHETIC BLOCK FOR CATARACT SURGERY****Talal Abdulrazaq Shaker Shnayien^{1*}, Ahmed Jabbar Kadhim² and Sabah Khudher Asfoor³**^{1*}Anesthesia and intensive care specialist, AlDiwaniyah teaching hospital, Aldiwanyia health directorate, Iraq²Anesthesia and intensive care specialist, Imam Al _Sadiq teaching hospital, Babylon, Iraq³Anesthesia and intensive care specialist, Al-Hussein teaching hospital, Samawah, Al-Muthanna, Iraq.***Corresponding Author:** - Talal Abdulrazaq Shaker Shnayien

*Anesthesia and intensive care specialist, AlDiwaniyah teaching hospital, Aldiwanyia health directorate, Iraq

Abstract:

Worldwide, cataracts are one of the leading causes of blindness. Local anesthesia is often used during cataract surgery unless there are medical reasons not to. To achieve local anesthesia, a specific area of the body's nerves are occluded. The procedure entails injecting a local anesthetic into the tissue around the nerve. In the eye, the retrobulbar and peribulbar approaches are the two most common. The effectiveness and safety of the peribulbar method compared to the retrobulbar block in administering anesthesia for cataract surgery is a matter of some contention. Examining the differences between peribulbar (PB) and retrobulbar (RB) anaesthesia in terms of pain levels, patient acceptance, and ocular and systemic consequences was the goal of this study. Clinical studies that compared peribulbar and retrobulbar anesthesia for cataract surgery were included in our meta-analysis. Neither retrobulbar nor peribulbar anesthesia was associated with a different level of perceived pain during surgery. Both had a significant impact. Concerning total akinesia and the need of further injections of local anaesthetic, there was no indication of any change. Relative risk (RR) 2.11, 95% CI 1.46 to 3.05 for conjunctival chemosis and RR 0.36, 95% CI 0.15 to 0.88 for lid haematoma after peribulbar block and retrobulbar block, respectively. Only one patient, who had a retrobulbar block, had the rare occurrence of retrobulbar hemorrhage. Anaesthesia, akinesia, patient acceptance, injection requirements, and the risk of serious complications are all closely related to whether a peribulbar or retrobulbar block is used during surgery. Both varieties of blocks were associated with a low incidence of serious local or systemic problems.

Keywords: Anesthesia, Cataracts, Eye**Introduction:**

The crystalline lens of the eye becomes opaque due to a cataract. In 1999, almost 20 million people were thought to be blind due to cataracts, making them the leading cause of blindness globally (Foster 1999). The most prevalent kind of cataract is associated with aging. Trauma, inflammation inside the eye, and genetics are some potential reasons. Everyone is focusing on getting surgery for those who need it since there are no proven methods to avoid age-related cataracts. The cataractous lens is surgically removed during cataract surgery to restore vision. Both intracapsular and extracapsular cataract extraction include removing the lens in its whole or only a portion of it, leaving the posterior capsule intact. An artificial intraocular lens may be inserted using the extracapsular method.

Local anesthesia is often used during cataract surgery unless there are medical reasons not to. By injecting a local anesthetic into the region around a nerve, local anesthesia blocks the nerve from providing sensation to a specific location of the body. The infiltration of the periocular region blocks all the nerves surrounding the globe in the eye. Local anesthetic that is painless, quick, safe, and successful is the aim (Hamilton 1988). When it comes to producing anesthesia for cataract surgery, there are many methods for administering local injections. Both the retrobulbar and peribulbar methods are used. Although retrobulbar injection seems to be more often used, peribulbar anesthesia

is gaining popularity due to claims that it offers the same level of akinesia and anaesthesia (Hessemer 1994). While the use of sub-tenons and topical or intracameral anesthesia is becoming more common during cataract surgery, peribulbar or retrobulbar anesthesia is still preferred in certain regions (Hansen 1998; Leaming 1999).

Spinal lumbar block anaesthesia A local anesthetic is introduced into the area behind the eye to create retrobulbar anesthesia (RB). Muscles that control eye movement encircle this area. Additionally, it houses the optic nerve, which controls the contraction of the eye muscles, and the sensory nerves that provide feeling to the whole body and everything in it (Springs 2001).

Injections into the buttocks the local anesthetic agent is administered outside the muscle cone to provide peribulbar anesthesia (PB) (Davis 1986; Fry 1990).

whether you're having cataract surgery, you may want to know whether the peribulbar approach or retrobulbar block offers better and safer anesthesia. The blind insertion of a needle into the intraconal area, which is a known risk of the retrobulbar technique, may cause substantial ocular injury. The ocular space is defined by the extraocular muscles and houses the adnexa and the majority of the eye's nerves. A scleral perforation, anesthetic injection into the perioptic meningeal area, or oculocardiac reflex activation are all potential complications. The administration of lesser amounts of anesthetic drug via this route may result in faster onset of analgesia and akinesia, albeit (Ali-Melkkila 1992). Peribulbar anesthesia, similar to the retrobulbar method, is meant to keep the eyes still and sedated during surgery; nevertheless, some argue that it is safer than the latter (Davis 1989; Murdoch 1990; Whitsett 1990). Although a peribulbar block is linked with a decreased risk of major problems, it may take more time for anesthesia to kick in and more medication to cover the area. According to Davis (1994), there is a possibility that both methods might lead to problems that could endanger sight or perhaps life. The purpose of this meta-analysis was to compile the most up-to-date information on the effects of peribulbar and retrobulbar anesthesia on cataract surgery. The results of earlier evaluations could not be trusted since they failed to take into consideration potential biases in the clinical studies. While Friedman et al. conducted a comprehensive literature evaluation to determine if regional anesthesia was beneficial for cataract surgery, their search only included studies conducted up to 1999 and they failed to evaluate whether further injections were necessary (Friedman 2001a; Friedman 2001b).

Methods:

Our meta-analysis of cataract surgery RCTs included both peribulbar and retrobulbar blocks.

Participants' categories Patients having cataract surgery were a part of this study.

Different kinds of treatments: For cataract surgery, we included peribulbar block to retrobulbar block studies. According to Ali-Melkkila (1993) and Davis (1989), the peribulbar block encompasses all of its variants.

Results and discussions:

Atharikar (1991), Weiss (1989), and Wong (1993) were the three trials that evaluated the pain score. Using this pain score, we may gauge how much discomfort the patient had during cataract surgery. Based on a scale from 0 (inadequate anesthesia for continuing operation), + (not ideal but sufficient), ++ (not ideal but more than adequate), and +++ (complete anaesthesia), Athanikar (1991) classified globe anaesthesia. According to Weiss (1989), there was a four-point scale for globe anesthesia: 4 for entire anesthesia, 3 for more than sufficient but not quite total, 2 for not ideal but just enough to continue, and 1 for inadequate to proceed. Glob anesthesia was ranked by Wong (1993) as either ideal, not optimal but able to continue, or not optimal and impossible to proceed.

There were five studies that evaluated globe akinesia: Ali-Melkkila (1992), Ali-Melkkila (1993), Athanikar (1991), Weiss (1989), and Wong (1993). Complete immobility of the eyeball (grade 'A' block), little eyeball movement (grade 'B' block), and movement requiring further injections (grade 'C' block) were the criteria used to classify the eyeball block. The summary statistics for globe akinesia

were based on the counts for Grade 'A' block, which represents full akinesia. The reason for this is because ordinal variables are not supported by RevMan 5.0.

Weiss (1989), Ali-Melkkila (1992), Ali-Melkkila (1993), and Wong (1993) were the four studies that evaluated the need of further injections.

All trials except Weiss 1989 documented complications arising from the two anesthetic procedures. The studies conducted by Ali-Melkkila in 1992 and Wong in 1993 documented the level of patient acceptance for the two therapies. In order to determine a patient's acceptance, Ali-Melkkila 1992 inquired as to whether the subject chose general anesthesia over local anesthesia, while Wong 1993 sought to know whether the subject would undergo the same block procedure again.

In one experiment, one out of seventy-one patients (0.3%) in the retrobulbar group had local retrobulbar hemorrhage (Athaniar 1991). The peribulbar group did not have any retrobulbar hemorrhage reports.

Four trials (Athaniar 1991; Ali-Melkkila 1992; Ali-Melkkila 1993; Wong 1993) confirmed conjunctival chemosis. Conjunctival chemosis was a concern for 17.4% of PBs (98/563 cases) and 7.1% of RBs (34/479 cases). The blocks were anesthetized with an average amount of 8.3 ml and 4.7 ml, respectively. Based on the fixed-effect model, the relative risk was 2.11 (95% CI 1.46 to 3.05; $P < 0.00001$). Substantial heterogeneity ($I^2=31.9\%$) did not occur. In comparison to RB, PB increased the likelihood of conjunctival chemosis. Reasons for this might include injecting a higher amount of anesthetic and bringing the anaesthetic agent into the orbit more anteriorly.

As a local complication, lid haematoma was described in one experiment (Ali-Melkkila 1993). A lid haematoma was possible in 2.7% of PBs (8/300) and 7.3% of RBs (11/150). ($P = 0.03$) The rate was much greater in RB compared to PB.

Nine patients (1.1%) in the peribulbar group and nine (1.3%) in the retrobulbar group had persistent ptosis, which is defined as the amount of reduction in the lid fissure drop at 90 days following surgery when it is equal to or higher than 2 mm. A ptosis risk ratio of 1.06 (95% CI 0.43 to 2.60; $P = 0.9$) was not different. This result was only documented in a single research (Feibel 1993).

In all of the studies, there were no reports of serious systemic side effects.

How sedation works Both the sedation group and the non-sedation group showed no differences in pain management or globe akinesia. Every subject was given alfentanil 15 minutes before to anesthesia in the Ali-Melkkila study of 1992, but in the Weiss study of 1989, 0.5 to 1 mg of intravenous idazolam was given before anesthesia.

Regarding pain management (globe anesthesia), the current research did not uncover any disparity between PB and RB (WMD - 0.03, 95% CI -0.17 to 0.11). The two methods found comparable rates (RR1.04, 95% CI 0.89 to 1.22) for globe akinesia grade 'A' block, which is a complete block without eye ball movement. Consistent with previous research, this study indicated that PB and RB were equally effective in reducing postoperative pain and the incidence of complete akinesia after cataract surgery (Friedman 2001a).

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