

COUNCIL LECTURE

A Comparative Study of Peribulbar Versus Posterior Sub-Tenon Anesthesia in Cataract Surgery in Ibadan, Nigeria

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Introduction: Local anesthesia is the blockage of a nerve supplying a given part of the body by infiltration of the area around the nerve with a local anesthetic agent.^[1] Some of its advantages include preservation of consciousness, wide margin of safety, and quicker patient recovery, thereby enabling day-surgery cases and reduction in cost of surgery.^[2-6] Routes of administration of local anesthesia for cataract surgery continue to evolve, and none can be regarded as the gold standard.

Aim: To compare the effectiveness and the safety profile of peribulbar and posterior sub-Tenon anesthesia in cataract surgery so as to make an informed choice of a better local anesthetic technique for cataract surgery in Nigerian patients.

Methods: A total of 152 eyes of 152 patients aged 50 years and above who underwent elective surgery for uncomplicated cataracts between October and December 2013 at University College Hospital and St. Mary's Catholic Eye Institute, Eleta, Ibadan, were randomized to receive either peribulbar block or posterior sub-Tenon block. All injections were administered by the principal investigator who was a senior registrar in his final year of residency training in Ophthalmology. Pain during injection, surgery, and after surgery was assessed using Numerical Pain Rating Scale. Limbal excursion was measured with transparent meter rule. Time taken to achieve akinesia was assessed with stop watch.

Results: Peribulbar and sub-Tenon regional blocks provided comparable adequate akinesia ($P = 0.06$) [Figure 1] and similar levels of analgesia ($P = 0.10$) during cataract surgery. Both techniques also provided similar levels of analgesia to the patient during injection and in the immediate postoperative period. Most of the patients (70 [92%] of peribulbar; 74 [97%] of sub-Tenon) reported either no pain at all or mild pain, and there was no report of severe pain at every stage of the surgery. The rate of supplementary injection was higher in the peribulbar group compared to the sub-Tenon anesthesia group ($P = 0.02$). There was no significant difference in the preincision time between both techniques of anesthesia ($P = 0.06$). Sub-Tenon anesthesia had significantly higher rates of minor ocular complications such as chemosis ($P = 0.005$) and subconjunctival hemorrhage ($P = 0.000$) [Table 1]. However, there was no incidence of sight- or life-threatening complications such as globe perforation, retrobulbar hemorrhage, and brainstem anesthesia.

Discussion and Conclusion: This study shows that peribulbar and sub-Tenon routes of administering anesthetic substances are comparable in providing adequate akinesia and analgesia for cataract surgery. This is similar to reports from Europe^[7,8] and Asia.^[9] The preincision time was similar in both arms of the study. The rate of supplementary anesthetic injection was higher in the peribulbar group suggesting that larger volumes of anesthetic agents are needed for this technique. The incidence of chemosis and subconjunctival hemorrhage was significantly higher in the sub-Tenon group. There was no incident of life- or sight-threatening complications. Therefore, this study suggests that both techniques are effective and safe.

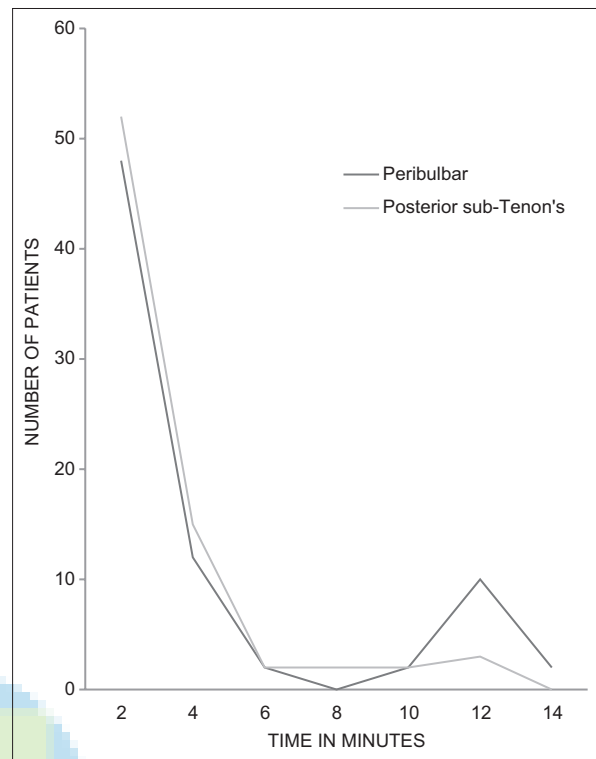


Figure 1: Akinesia score of 0-4 against time $P = 0.06$

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Table 1: Ocular complications associated with anesthesia injections

Complications	Peribulbar n (%)	Posterior sub-Tenon n (%)	P
Chemosis	15/76 (19.7)	33/76 (43.4)	0.005
Subconjunctival hemorrhage	3/76 (3.9)	44/76 (57.9)	0.000