Alkalinization in peribulbar anesthesia for surgery on inflamed eye

Dear Editor,

I read with great interest, the article by Venkatakrishnan *et al*, 'Peribulbar anesthesia for cataract surgery: Effect of lidocaine warming and alkalinization on injection pain, motor, and sensory nerve blockade.'[1] They observed that alkalinization of lidocaine results in the least painful injection in peribulbar anesthesia and could be the best option for anesthesia in cataract surgery. I agree with the author's observations.

I would like to share my experience regarding alkalinization of lidocaine with sodium bicarbonate, which I have been practicing for the last few years when performing surgery on an inflamed eye. Few common indications in adults are evisceration, enucleation, and therapeutic keratoplasty, with or without anterior vitrectomy, when the eye is significantly inflamed because of invading infection. Generally, these surgeries are preferably performed under general anesthesia or under local anesthesia with good sedation.[2-4] Earlier when the procedure was being performed with local anesthesia plus sedation, many of my patients became uncomfortable and non-cooperative within the first few minutes due to pain and more often needed supplemental anesthesia. Postoperative headache, nausea, and vomiting were also often noticed.[3]

Later, for giving blocks, I used a mixture containing lidocaine with adrenaline (5 cc) plus bupivacaine (4cc) plus hyaluronidase and sodium bicarbonate (1cc), with pH maintained between 6.5 and 7. I noticed that the duration of anesthesia lasted for more than one hour in most of our patients, and there was no need for supplemental sedation. This was particularly useful in those who were unfit or unwilling for general anesthesia. Therefore, alkalinization of the anesthetic solution sounds more beneficial for surgeries of the inflamed eye, to avoid unwanted effects of excessive sedation or possible conversion to general anesthesia.

It may be logically stated that highly inflamed tissue has acidic pH due to secretion of arachidonic acid and its derivatives.[5] Alkalinization of injectable solution neutralizes the pH of the tissue. In alkaline pH, the efficacy of hyaluronidase also increases.[6]

However, I must admit that our experience is limited, with fewer surgeries as compared to other institutions, and would like the experts to share their thoughts. Further studies are required to validate our observation of using alkalinization in inflamed eye surgery.

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