Bacteriostatic Saline as a Local Anesthetic in Minor Eyelid Procedures

Introduction

Benzoyl alcohol is an aromatic alcohol that has been used in healthcare primarily as an antibacterial preservative agent in bacteriostatic saline. It has also been shown to have anesthetic properties, and has been demonstrated to cause less pain with infusion compared to lidocaine1, while maintaining adequate pain relief for certain procedures such as IV insertion2,3, cervical anesthesia4 and hip injections5. It has also been demonstrated to provide pain relief when used to reconstitute botulinum toxin and to have greater cost effectiveness compared to lidocaine10,6.

The use of bacteriostatic saline alone as an anesthetic for incisional procedures in the periocular area has not yet been studied.7 In a prospective, randomized, double-blinded randomized control trial comparing lidocaine buffered with either bacteriostatic saline or sodium bicarbonate in incisional eyelid surgery, lidocaine buffered with bacteriostatic saline showed greater comfort on injection with bacteriostatic saline buffer while providing a similar level of anesthesia,8 bacteriostatic saline with epinephrine was significantly less painful on infiltration. In a dermatologic randomized controlled trial, compared to lidocaine buffered with sodium bicarbonate for superficial procedures such as shave excision, scissor excision, superficial curettage but not deep punch biopsy or flap closures.9

Clinical question

Does bacteriostatic saline an adequate level of anesthesia compared to lidocaine with epinephrine while reducing pain associated with medication infusion in minor eyelid procedures.

Participants

Patients >= 18 years old undergoing clinic-based “minor” eyelid procedures in clinic with at least one lesion.

Inclusion criteria:
1. Age >=18 years old
2. Any eyelid lesion presenting to clinic setting

Exclusion criteria
1. Any other topical, PO or IV sedating medications given alongside procedure
2. Allergy to lidocaine or epinephrine

Intervention

1. 0.9% Bacteriostatic Saline
2. 2% Lidocaine + 1/100,000 Epinephrine

Outcome Measures

Primary
1. Pain during injection (1-10)
2. Pain during procedure (1-10)

Secondary
1. Bleeding requiring >5 minutes of firm pressure or cautery
2. Need for additional anesthesia

Study Protocol

Prior to clinic day, patient list will be reviewed to identify potentially eligible patients. On the procedure day, eligible patients will be approached for participation following initial evaluation by attending physician. If patient amenable, patient will be consented for study. Photograph will be taken of the lesion directly in electronic medical record, and lesion circled using annotate function. Each lesion will be randomized separately using iPhone-based randomization application to either bacteriostatic saline or lidocaine with epinephrine. Fellow will be unblinded, attending physician blinded. Medication will be drawn up by fellow and handed to attending physician who will inject the medication. Immediately following injection, patient will be asked pain level on 0 to 10 scale, which was noted. Five minutes will be allowed to pass and then procedure will be commenced. If patient has more pain than acceptable to them, additional study agent will be injected and procedure re-started. If continued presence of pain, one more additional trial of the study agent will be allowed. If patient continues to have pain, medication will be defaulted to standard of care (lidocaine with epinephrine). Alternatively, if patient requests standard of care at any point, medication will be switched to this. Immediately following procedure, patient will be asked pain level on 0 to 10 scale, which was noted. Number of reinjections or need to default to standard of care will be noted. Bleeding level (Mild, moderate, or severe) will be noted. Mild is defined as not needing pressure to stop. Moderate is defined as needing five minutes or pressure to stop. Severe is defined as needing cautery or a pressure patch. Immediately following injection, patient will be asked pain level on 0 to 10 scale.

Statistical Plan

Pain of injection and pain of procedure are recorded on a categorical scale and compared using Student T-Tests. Percent of lesions requiring reinjection and percentage of lesions with “severe” bleeding were compared using Chi-square tests. To see if lesions size had any effect on these metrics, the lesions will be divided into < 1 mm, 1-5 mm, and > 5 mm, and analysis will be repeated on these groups.

References

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