COMMENTARY: A Prospective Comparison Between Neutralizing the pH of 1% Lidocaine with Epinephrine (Buffering) and Pre-Operative Skin Cooling in Reducing the Pain of Infiltration of Local Anesthetic

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Dermatologic surgeons have long been trying to find ways to eliminate patient discomfort associated with dermatologic procedures. Although some dermatologic procedures, such as facial resurfacing and extensive procedures performed on children, require intravenous or general anesthesia,[1] dermatologic surgical procedures usually require only local anesthesia, which is frequently administered via injection, to eliminate pain at the surgical site. The article by Mohammed Alshahwan, MD, titled "A Prospective Comparison Between Neutralizing the pH of 1% Lidocaine with Epinephrine (Buffering) and Preoperative Skin Cooling in Reducing the Pain of Infiltration of Local Anesthetic," addresses the pain inherent in infusion of local anesthetic.[2]

Methods used to achieve anesthesia include injection of an anesthetic solution of lidocaine, mepivacaine, bupivacaine, etidocaine, procaine, tetracaine, or chloroprocaine, all with or without epinephrine, around the surgical site[3]; application of topical anesthesia, such as lidocaine, lidocaine mixed with prilocaine, lidocaine mixed with prilocaine and dibucaine, or tetracaine over and around the surgical site[4,5]; application of topical anesthesia with occlusion, iontophoresis, skin warming, or pretreatment with tape stripping or acetone to enhance absorption and efficacy[6]; infusion of anesthesia using a pump to control infusion rate and pressure[7]; regional blocks using injectable anesthesia or intravenous anesthesia[8]; tumescence [9,10] with nonneutralized or neutralized solution at room temperature or warmed[11]; and the use of skin cooling via application of ice cubes, gels, ethyl chloride spray, a chilled sapphire plate, or a device emitting cold air.[12,13]

The most common means to achieve anesthesia in dermatologic practice is to inject a premixed combination of lidocaine and epinephrine around the surgical site to attain excellent anesthesia so that the procedure itself is pain free, but patients often experience some degree of pain with the initial needle stick and infiltration of the anesthetic agent. The author assessed patient perception of the degree of pain experienced using two different techniques of anesthetizing—pre-injection application of cold to the injection site and use of a buffered anesthetic solution—to determine which technique provided the most patient comfort during infiltration of the anesthetic solution. He determined that buffering the anesthetic solution with sodium bicarbonate

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provides patients with the most comfortable and least painful anesthesia infiltration experience, although the difference was not statistically significant.

With nearly 3.9 million dermatologic procedures being performed annually in the United States,[14] determining the least painful and most effective means of providing anesthesia will have a tremendous effect on a large patient population. This study suggests that further comparative studies are indicated. Perhaps those studies should include comparisons between aforementioned anesthetizing techniques as well as nontraditional techniques such as manipulation of environmental factors, for example, sensory-stimulating tactile, auditory, and visual diversions. It is likely that the overall benefit of diminishing pain associated with procedures will have the effect of decreasing procedure-associated anxiety and enhancing overall patient satisfaction.

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