Parallel Vibrating Kinetic Anesthesia Devices to Reduce Pain with Scalp Injections

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Abstract

The scalp is a frequent site of dermatologic procedures, and a patient's experience with the dermatologic procedure is often shaped by the pain associated with it. In this article, a technique using multiple kinetic anesthesia devices is described to both reduce pain and improve patient satisfaction with scalp injections.

Keywords: Kinetic anesthesia device, local anesthesia, platelet rich plasma, scalp injections, vibrating anesthesia

The scalp is a frequent site of injection in dermatologic surgery, whether it be for infiltrative local anesthesia, steroid or platelet-rich plasma (PRP) injections. Vibration analgesia reduces the pain associated with many dermatologic procedures, resulting in higher patient preference for the use of vibrating kinetic anesthetic devices (KADs).[1,2] Because patients' perception of dermatologic procedures may be influenced by the pain associated, any additional techniques that may minimize it are very important.

A KAD-assisted injection is traditionally performed with a single KAD placed adjacent to the procedural site. In contrast, this technique involves two, parallel KADs on opposing sides of the injection, with or without a third KAD at the neurovascular foramen (near the orbital rim) as a vibrational nerve block [Video 1]. The patient is positioned with the head of chair elevated at about 20° with the surgeon sitting on the posterior aspect of the patient and the surgical assistant (SA) anterior or lateral. When multiple scalp injections are required, such as in PRP, the injections are performed in a linear fashion from the anterior to posterior scalp, with the SA following and "straddling" the injection sites with the KADs. Alternatively, the surgeon may hold one KAD and the SA follows along with the second, while the third KAD is placed over the neurovascular foramen. Each KAD is cleaned with sterilizing wipes and then a sterilized cover is placed over it prior to the procedure. The mechanism by which vibration anesthesia alleviates pain sensation has been postulated as a reduction in pain transmission from peripheral receptors to the brain,[3] and is explained in part by the "gate control" theory which suggests that pain sensation can be dampened by costimulation of nerve fibers transmitting nonoxious stimuli such as vibration.[4] Therefore, it follows that using additional KADs would result in the costimulation of more nerve fibers than a single KAD, resulting in greater dampening of the pain sensation.

While these techniques require an SA, utilizing them on hundreds of patients in the senior author's (CC) clinic has resulted in high patient satisfaction due to a significant reduction or elimination of procedural pain.

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Conflicts of interest

There are no conflicts of interest.

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