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Application of Topical Sevoflurane Before Cleaning Painful Skin Ulcers[☆]



Sevoflurano tópico previo a la limpieza de úlceras cutáneas dolorosas

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Introduction

Pain experienced during the cleaning of painful wounds tends to have a major physical and emotional impact on patients. Chronic pain can seriously affect quality of life, overall patient satisfaction, and professional-patient relationships.¹

Sevoflurane 100% is a halogenated ether anesthetic derivative. It is supplied as a fluid and is generally administered by inhalation. It is indicated for the induction and maintenance of general anesthesia during hospital or ambulatory surgical procedures in adults and children.²

Topical sevoflurane has been proposed as an alternative for treating pain associated with chronic vascular ulcers.^{3–5} Its topical use is off-label and therefore requires informed consent for compassionate use and approval by a pharmacy commission.

Description of Technique

When cleaning an ulcer with sevoflurane, place the patient on a stretcher in a well-lit, well-ventilated area or near a

window. Wear a mask at all times to prevent adverse effects from vapors.

Sevoflurane (Sevorane, Abbott Laboratories, S.A.) is supplied in a 250-mL amber polyethylene naphtholate bottle and should be stored at an ambient temperature of 15°C to 30°C and protected from sunlight. Remove the yellow cap and, using an 18-gauge drawing needle, press down firmly into the center of the bottle until the needle is completely inserted. Connect a 3-way stopcock key to the needle and draw up the liquid through a syringe.

Remove the patient's bandage and gently wash the bed of the wound with 0.9% saline. The usual dose of liquid sevoflurane is 1 mL per cm² of wound. Protect the perilesional skin by applying petroleum jelly to the edges of the wound and covering it with a sterile dressing.

Attach a 25-gauge subcutaneous needle to the syringe and administer the anesthetic by direct instillation. Cover the bed of the ulcer with a sterile dressing soaked in saline. Once the analgesic effect has set in (sevoflurane generally has a latency time of 2 to 7 minutes), proceed to clean the ulcer.

Indications

The analgesic use of topical sevoflurane is indicated for hospitalized or ambulatory patients with painful cutaneous lesions that are refractory to treatment with conventional painkillers.

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Contraindications

Do not use topical sevoflurane in patients with a history of malignant hyperthermia or allergy or hypersensitivity to sevoflurane.

Complications

Local adverse effects associated with topical sevoflurane tend to be short-lived and mild. The most common effects are pruritus and erythema at the edges of the wound. Other effects include a sensation of irritation, stinging, heat and/or burning in the area of the ulcer and surrounding healthy skin.

Local effects can occur during application and/or minutes or hours afterwards. However, they generally appear in the first 5 to 10 minutes and often dissipate in subsequent hours.

Contact irritant dermatitis is rare and no cases of sensitization to topical sevoflurane have been reported.

Adverse effects in perilesional skin do not generally require treatment, as they tend to resolve spontaneously. Treatment with emollients may, however, be required and on rare occasions a patient may need medium-potency topical corticosteroids.

There have been no reports of adverse systemic effects, hemodynamic repercussion, dose-dependent toxicity, or cutaneous reactions at a distance from the application site.

Environmental exposure risks include general malaise, dizziness, nausea, and self-limiting mild to moderate headache. Medical personnel are at risk of secondary contamination from vapors resulting from incorrect usage, and the level of exposure is greater the nearer the application site is to the person's airways. We therefore advise health care professionals to follow the indications in this document when using topical sevoflurane. Although the method will not completely eliminate risk, it will minimize the occurrence of adverse clinical effects.

Conclusions

Topical sevoflurane is a simple, noninvasive, useful, effective, and safe alternative for alleviating pain during the

cleaning of painful skin ulcers. It can reduce or eliminate the need for other conventional painkillers, such as paracetamol, nonsteroidal anti-inflammatory drugs, metamizole, and opioids. It achieves a rapid, intense, and lasting analgesic effect. Topical sevoflurane has also been reported to have antibacterial and healing properties.³⁻⁵

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at [doi:10.1016/j.adengl.2017.12.023](https://doi.org/10.1016/j.adengl.2017.12.023).

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