



ANALGESIC EFFECT OF TOPICAL SEVOFLURANE ON PAINFUL DIABETIC FOOT ULCER



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OBJECTIVES

The aim is to report successful treatment of refractory diabetic peripheral neuropathic (DPN) pain with the use of sevoflurane topical application.

BACKGROUND

Liquid volatile anesthetics locally applied to the skin can produce an analgesic effect. Furthermore, epithelial regeneration secondary to direct vasodilatation and bactericide effect by topical volatile anesthetics on ulcerated wounds have been previously described.

METHODS

A 51 year-old male was referred to our pain center for treatment of painful DPN.

One month before, a peripheral angioplasty of the left femoral artery and amputation of the 5th toe were done. He was known for arterial hypertension, 10-year history of poorly controlled type 2 diabetes mellitus with secondary peripheral neuropathy, hypercholesterolemia and over 30 years of active tobacco use. He was admitted to the Diabetic Foot Unit for a painful diabetic ulcer of his left foot associated with mild cellulitis. The patient was already on optimal daily wound care including topical and systemic antibiotics.

Despite maximal pain treatment with non steroidal anti-inflammatories, adjuvants and serial sciatic nerve blocks, the patient complained of a constant burning pain with tingling and numbness with an intensity of 9/10 on a Numeric Rating Scale (NRS). The possibility of a below-knee amputation was raised by the surgical team.

In this context, we proposed to the patient the off-label use of topical sevoflurane irrigations.

Informed consent was obtained beforehand. A total of 10 mL of Sevoflurane[®] (Abbott Laboratories, United Kingdom) was applied directly and subcutaneously to the wound every other day using a metered syringe and a 25-gauge needle. The wound was left to dry for 15 minutes and then covered with an absorbent dressing.

RESULTS

With the first application, the patient had good pain relief with an NRS of 1/10 and the effect lasted for 14h. After the 5th dose, the possibility of amputation was discarded due to the excellent evolution. Patient satisfaction with the treatments was high.



CONCLUSION

The compassionate use of topical sevoflurane changed the prognosis of our patient, causing rapid and intense analgesia and, as already seen in other studies, producing a direct antimicrobial and vasodilating effect, helping the wound to cicatrize. This attractive therapeutic option needs to be investigated in order to evaluate its possible utility that the present case suggests.

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