Control local infection and vascular ulcers pain with topical sevoflurane. Series cases report

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Patient	Genner	Age	Etiology	Evolution (months)	Interval administration	Number of treatments	EVA previous sevoflurane irrigation	EVA 5 minutes later
1	Woman	84	Martorell ulcer	6 months	Once per week	4	10-2-0-0	2-0-0-0
2	Male	45	Werner S.	5 months	Once per week	7	10-3-0-0-0-0-0	2-0-0-0-0-0-0
3	Woman	55	Martorell ulcer	2 months	twice per week	7	10-10-10-10-10-10-10	2-2-2-2-2-2-2
4	Male	71	Post radioterapy	3 months	Once per week	2	10-10.	2-2.
5	Woman	70	linfoide vasculopatya	18 months	Once per week	4	10-1-1-1	2-0-0-0
6	Woman	78	Martorell ulcer	12 months	Once per week	2	10-7.	2-2.

Background: Pain management at wound dressing-related procedures can be a real challenge, despite the use of opioids and other analgesics, specially in patients with Martorell hypertensive ischemic leg ulcer. In the recent years, topical sevoflurane has been used as a compassionate use drug for pain control during wound dressing changes of vascular leg ulcers (1,2).

Clinical cases report: We present a series of 6 clinical cases with baseline EVA score of 10/10, in which after the consent of the hospital commission for the compassionate use of drugs and patient informed consent form. All patients presented with deep leg ulcers, mainly Martorell's ulcer, and uncontrolled pain despite opioids and NSAIDs. Topical sevoflurane was applied 1 ml/cm² over the wound size. The maximum dose administered did not exceed 10 ml in any case.

After sevoflurane application, an outstanding reduction in the EVA score (less than 2/10 score) was observed in less than 5 minutes. The duration of pain control was variable, with an average of 2-3 days. Morphine dosis were reduced for all patients and, except for two oncological patients, the opioid treatment could be discontinued. Treatment sessions were repeated once or twice per week. In addition, it was observed angiogenesis, signs of decreased bioburden (odor and exudation reduction), and initiation of re-epithelialization. Subsequently, the ulcers of four patients were punch-grafted with success. The only adverse effects observed were short-term pruritus, burning sensation and erythema over the periwound skin.

Discussion: Direct application of sevoflurane onto leg ulcers resulted in an intense and long-lasting analgesia and was associated with a progressive reduction of ulcer size. All patients had significant reduction in overall pain, daily opioid use, and ulcer size. Clinical trials are needed so that the analgesic and bactericidal effects of topical sevoflurane in leg ulcers can be confirmed. Topical sevoflurane could be a good option for pain control, opioid dose reduction, decrease in bacterial load due to its potential bactericidal effect, and angiogenesis enhancement considering its anti-inflammatory and vasodilator effect in leg ulcers.

References:

- 1 Damaso Fernandez-Gines et al. Am J Health Syst Pharm. 2017;74:e176-e182.
- 2 Imbernon Moya A et al. Int Wound J. 2017;14:1323-1326.

Learning points: Topical sevoflurane irrigation could have intense and long-lasting analgesia effects in vascular ulcers.

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