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Using Topical Negative Pressure with a Lipidocolloid Dressing

Topical negative pressure (TNP) is a non-pharmaceutical technique for the treatment of complex, acute, chronic, infected or non-infected wounds.[1-10] Reported adverse effects include pain[10] — which most often occurs when the dressing is removed because buds of granulation tissue become fixed in the foam's open mesh — and/or discomfort.[7]

Although strategies recommended to reduce pain include use of a non-adherent dressing beneath the foam dressing,[10,11] no clinical evaluation has yet been conducted to demonstrate its advantages. In France, practitioners familiar with TNP often use a lipidocolloid non-adherent dressing (Urgotul, Laboratories Urgo, Dijon, France) between the foam and the wound.[12] The small mesh of this dressing prevents granulation tissue from migrating into the foam, reducing the risk of granulation bud damage. Clinically, this translates as painless, or almost painless, removal of the foam dressing, and results in improved patient acceptability.[12]

Methods

To assess whether a lipidocolloid nonadherent dressing used in conjunction with TNP can be removed without causing pain and trauma to the wound bed and whether it is acceptable to patients, a multicenter clinical evaluation was conducted in eight French hospitals by departments of plastic and reconstructive surgery, vascular surgery, general surgery and dermatology. Patients under age 18 years old or who were pregnant or lactating were excluded. Wound area tracings were recorded and photographs were taken at study beginning and end. Pain was evaluated and documented by physicians and nurses during each dressing change throughout the follow-up period.

Care procedure. After cleansing the wound with saline and/or local antiseptic, the contact layer was applied to the wound bed. The TNP foam dressing was applied as per manufacturer's instructions; a starting negative pressure of 100 to 125 mm Hg was applied either continuously or intermittently as considered suitable by the investigator.

Results

Of the 66 patients included in the study, 45 were men, 21 women, with a mean age of 57 years (range 16 – 92). In total, participants received 1,145 days of treatment and underwent 320 documented clinical evaluations and local care procedures. On average, the dressings were removed every 3.8 ± 1.1 days (for all wounds) and the mean treatment duration was 17 days (range 17.4 ± 10.1).

Of the 66 wounds, 64% were acute. Most were postoperative and had been present for an average of 16 days. The remainder (36%) were chronic; these were mainly pressure ulcers and had been present for an average of 226 days.

Before treatment with the TNP and interface dressings, pain was noted in 62% of care procedures. At baseline, pain was noted in 66% of patients, even though 60% were prescribed oral analgesics (see Table 1).

Patients rated TNP-interface dressing combination removal as very easy (123 out of 319 cases,

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39%), easy (178 out of 319, 56%), difficult (17 out of 319, 5%), and very difficult (one out of 319, 0.3%). The dressing combination adhered to the wound in 39 out of 311 cases (12%); no adherence occurred in the remaining 272 cases (88%).

The interface dressing did not adhere to the wound in 199 out of 316 cases (63%). Minor adherence occurred in 98 out of 316 cases (31%) and moderate adherence in 19 out of 316 (6%).

No bleeding at dressing removal was noted in 169 out of 319 (53%) Minor bleeding occurred in 121 out of 318 cases (38%) and moderate bleeding in 28 out of 318 (9%).

Dressing application was reported as very easy in 49 out of 274 cases (18%), easy in 200 out of 274 (73%), and difficult in 25 out of 274 (9%) (see Table 2).

Discussion

Topical negative pressure therapy has been adopted by many clinicians. Clinical trials[1-10] have demonstrated its advantages in wounds difficult or impossible to manage with traditional methods. Although TNP use may be restricted by often painful dressing removals,[10] application of a nonadherent dressing under the foam may provide a solution.[7]

Despite this study's non-comparative design, more than 320 care procedures were documented by nursing staff. In the majority of cases, dressing changes were less painful when the TNP was used with the interface dressing, most likely because no granulation tissue became attached to the foam dressing. This lack of adherence is similar to that observed with the lipidocolloid dressing in patients with burns and in fragile populations such as children[13] and in patients with congenital epidermolysis bullosa skin lesions.[14] Painless or almost painless dressing removal meant that care procedures were better accepted and even improved quality of life.

TABLE 1
BASELINE WOUND CHARACTERISTICS (N=66)

Chronic wounds	
Leg ulcer	5 (7.6%)
Pressure ulcer	12 (18.2%)
Diabetic foot ulcer	2(3.0%)
Chronic postoperative	5 (7.6%)
Total	24 (36.4%)
Acute wounds	
Postoperative	24 (36.4%)
Trauma	10 (15.2%)
Burn	5 (7.6%)
Graft	3 (4.6%)
Total	42 (63.6%)
Location	
Leg	15 (22.7%)
Foot	12 (18.2%)
Thigh	9 (13.6%)
Abdomen	5 (7.6%)
Forearm	4 (6.1%)
Pelvis	2 (3.0%)
Back	2 (3.0%)
Shoulder	2 (3.0%)
Chest	1 (1.5%)
Arm	1 (1.5%)
Other (sacrum, trochanter, breast, cranium)	13 (19.7%)
Surface (cm^2)	
Mean ± SD	111.7 ± 126.7
Median (range)	60 (3–550)
Depth (mm)[a]	
Mean ± SD	36.3 ± 32.1
Median (range)	30 (5–175)

Chronic wound duration (days)	
Mean ± SD	225.7 ± 313.1
Median (range)	90 (8–1,080)
Acute wound duration (days)	
Mean ± SD	15.8 ± 20.0
Median (range)	7 (0–76)
Type of exposed structure	
Muscle	37 (23.7%)
Adipose tissue	31 (19.9%)
Aponeuosis	22 (14.1%)
Tendon	18 (11.5%)
Periosteum	18 (11.5%)
Spongy bone	12 (7.7%)
Peristeal bone	5 (3.2%)
Prosthetic material	4 (2.6%)
Vascular-nervo peduncle	1 (0.6%)
Gastrointestinal fistula	1 (0.6%)
Other (sacrum, flap graft, small intestine)	7 (4.5%)
Infected wound	
Yes	28 (42.4%)
No	38 (57.6%)
If yes, oral antibiotics	82.1%
Condition of periwound skin[b]	
Healthy	27 (41%)
Inflamed	27 (32%)
Edematous	12 (18%)
Eczematous	6 (9%)
Macerated	7 (11%)
Other	6 (9%)

[a] n = 54
[b] More than one response was given
SD = standard deviation

TABLE 2
PAIN DURING CARE PROCEDURES AND BETWEEN TWO CONSECUTIVE DRESSING CHANGES: AT BASELINE AND FOLLOW-UP

	Baseline (%)	Follow-up (%)
During care procedures		
Absent	17.9	52.5
Minor	12.6	34.9
Moderate	30.3	9.3
Marked	39.2	3.4
Between two consecutive dressing changes		
Present	66.1	34.3
Absent	33.9	65.7
If present between two consecutive dressing changes, pain intensity		
Minor	26.3	59.6
Moderate	47.4	28.4
Marked	26.3	12.0
If present between two consecutive dressing changes, pain frequency		
Occasional	34.5	55.7
Frequent	41.4	31.4
Constant	24.1	12.9

Clarification

The lipidocolloid dressing cited in this article, Urgotul® (Laboratories URGO, Dijon France), is marketed in the US by Hollister Wound Care LLC as Restore® Contact Layer Dressing with TRIACT™ Technology. In the US, lipidocolloid technology is known as TRIACT™ Technology. - OWM

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