

Hypochlorous acid versus normal saline solution for the cleansing of indeterminate-depth burn wounds: a randomized, controlled trial

Nantaporn Namviriyachote, Apichart Hema, Suttipong Tianwattanatada, Kusuma Chinaroonchai, Suchada Kittidacha, Pornprom Muangman. 2026. Burns Open 14: 100446. doi.org/10.1016/j.burnso.2026.100446



KEY POINTS

- ✓ Granudacyn® Wound Irrigation Solution (hypochlorous acid solution) can be an effective agent for wound irrigation, but controlled trial-based evidence in burns is lacking.
- ✓ In this randomized controlled trial (RCT) of 27 patients (54 burns), average healing time was shorter with Granudacyn vs. normal saline ($p = 0.01$). Granudacyn was well tolerated by patients with rapid resolution of pain after irrigation.

BACKGROUND

- Burn wounds take time to heal, and can subject patients to prolonged discomfort.
- Shortening the healing process is desirable from both the patient and healthcare system perspectives. Burns are very costly to treat.
- Advanced wound dressings can contribute to improved healing rates, but the role of wound cleansing to support healing is less well-defined.
- Granudacyn (hypotonic solution of hypochlorous acid, sodium chloride and sodium hypochlorite) is a wound cleanser that may be used in the management of various wound types, including burns.

STUDY AIM: To evaluate healing outcomes in clinically indeterminate-depth burns irrigated with Granudacyn or normal saline.

METHODS

Single-centre, prospective, randomized controlled trial performed between June 2021 and December 2023 in Thailand.

Inclusion: Adults with partial-thickness (second degree) burn wounds that had occurred within ≤ 72 hrs, covering $\geq 5\%$ of total body surface area (TBSA), with at least two burn sites measuring $>50\text{cm}^2$.

Two anatomically comparable wounds were randomized using a computer-generated sequence. Wounds were then irrigated with either Granudacyn or normal saline once daily for 21 days.

Wound dimensions were assessed using digital tracing. Wound beds were swabbed on day 7 and 14 for bacterial enumeration via culture.

MAIN FINDINGS

Granudacyn improves healing in indeterminate-thickness burns



Wound epithelialization rate was improved between Day 15 and 21

- Two burns on the same patient were randomized to receive irrigation with Granudacyn or normal saline once daily for 21 days.
- Improved wound healing rate (including rate of epithelialization) was noted in wounds treated with Granudacyn.
- Although not statistically different, bacterial load tended to be lower in the Granudacyn-treated wounds.
- Although this study reports results from a relatively small number of patients, it provides RCT-based evidence in support of the effectiveness of Granudacyn in burn management.

RESULTS IN DETAIL

- Patients (Table 1) had one of their wounds irrigated with Granudacyn and the other irrigated with saline over the 21-day study period.
- Wounds were not significantly different in size at study outset (Table 1). Dressing practices were tailored to the anatomical location of the wound but did not vary significantly between wounds treated with Granudacyn vs. saline.

Table 1: Demographic and clinical characteristics of participants (n=27)

Characteristic	
Male, n (%)	19 (70.4)
Age, years (Mean±SD) (Range)	43.48±9.79 (25–60)
Comorbidity, n (%)	
– Hypertension	6 (22.2)
– Dyslipidaemia	4 (14.8)
Type of wound, n (%)	
– Scald burn	18 (66.7)
– Flame burn	9 (33.3)
%TBSA, percent (Mean±SD) (Range)	37.5±11.3 (20–60)
Full thickness burn area (%)	0
Length of stay in burn unit, days (Mean±SD) (Range)	50.1±14.3 (24–79)
Patients requiring surgery (%)	0

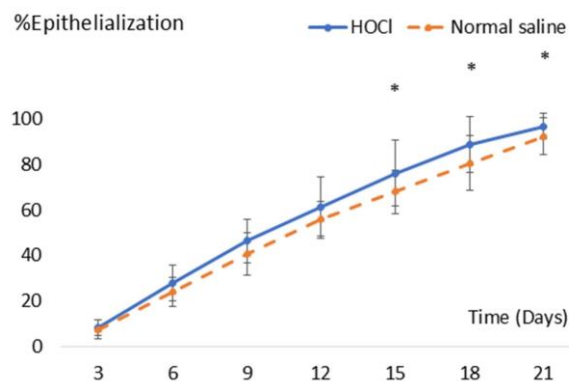


Figure 1: Percent epithelialization in burn wounds irrigated with Granudacyn (HOCL) or normal saline

Table 2: Wound healing time and bacterial colonization outcomes

Outcome	HOCL	Normal saline	p value
Initial area (cm ²)	216.4±30.5	226.5±41.5	0.99
Healing time (days)	18.7±3.0	21.0±2.6	0.01
Bacterial colonization – Week 1, n (%)	5 (18.5)	8 (29.6)	0.453
Bacterial colonization – Week 2, n (%)	1 (3.7)	6 (22.2)	0.063

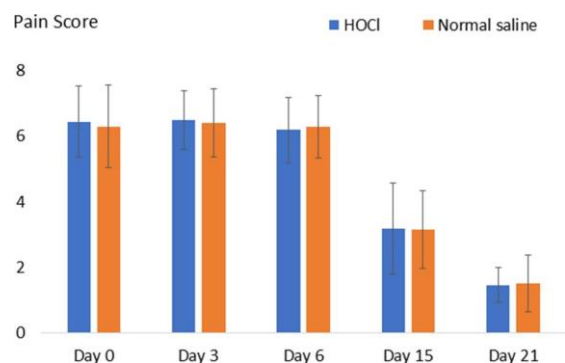


Figure 2: Mean pain scores (VAS 0-10) after wound cleansing

- From Day 15 onwards, wound epithelialization rate was significantly higher in wounds treated with Granudacyn vs. normal saline (Figure 1).
- Time to healing was significantly shorter for burns cleansed with Granudacyn (Table 2).
- Bacterial colonization was evaluated at Day 7 and Day 14 through culture-based enumeration. Although not statistically significantly different, bacterial colonization tended to be lower in wounds treated with Granudacyn (Table 2).
- Pain was not significantly different between groups (Figure 2), resolving quickly after dressing application.

CONCLUSIONS Granudacyn improved the healing of indeterminant-depth burn wounds in an RCT involving 27 patients.

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Mölnlycke Health Care AB, Entreprenörstråket 21, Mölndal, SE-431 53, Sweden. Phone + 46 31 722 30 00.

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