

Efficacy of Pure Hypochlorous Acid (pHA) Preserved Solution in the Treatment of Severe Perianal Contact Dermatitis in Infants

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Introduction

Premature infants in the neonatal intensive care unit (NICU) often suffer from severe perianal contact dermatitis (PCD). Multiple factors increase the risk for these painful wounds include the immaturity of the skin, caustic nature of the stool, alkaline breakdown products of urine, and secondary bacterial and fungal infections of the skin. Treatment of PCD in NICU patients has focused on application of various barrier products to protect the skin from ongoing irritation. The author sought to determine if in addition to traditional treatment, focusing on treatment of the wound itself might expedite healing.

Pure Hypochlorous acid (pHA) preserved wound cleanser solution has been shown to be effective towards reduction of bioburden of wound beds¹. pHA also disrupts microbial colonies² and has a pH range aligned with the pH of the skin which helps in healing³.

In this case series, infants with severe PCD were treated with a single daily application of pHA in combination with traditional barrier ointments and dressings. The goal was to determine if pHA might synergistically expedite PCD healing.

Methods

Ten infants in the NICU with severe PCD who had shown poor response to various topical barrier ointments and dressings were recruited. Gauze dressings were saturated with pHA solution, applied directly to the affected skin, and left in place for 5-10 minutes. Thereafter, barrier ointment was reapplied to the site. The pHA was applied once daily for 7 days. Routine diaper changes and skin hygiene continued as usual. Photographs were taken for objective assessment and documentation.

Patient Characteristics

Patient #	Gestational Age	Chronological Age	Sex	Duration of condition prior to treatment	Percentage Resolution after 7 days treatment
1	25 weeks	5 months	Female	7 days	100%
2	23 weeks	4 months	Female	8 days	100%
3	25 weeks	16 days	Female	7 days	100%
4	38 weeks	2 months	Male	7 days	100%
5	23 weeks	20 days	Female	8 days	100%
6	23 weeks	4 months	Female	4 days	100%
7	34 weeks	14 days	Female	6 days	100%
8	38 weeks	1 month	Male	7 days	100%
9	23 weeks	1 month	Female	8 days	100%
10	25 weeks	5 months	Female	5 days	75%

Illustrative Cases

Case 1

5 m/o 25-week premature female with history of intestinal perforation and bowel resection. Poor response to cyanoacrylate and zinc barrier. Open wounds resolved after 7 days pf treatment protocol.



Case 2

4 m/o 23-week premature female with recent cardiac-related surgery. Reduced direct care nursing intervention due to cardiac decompensation. Poor response to Quesstran/Aquaphor. Skin improved after 7 days treatment protocol and improved diaper hygiene.



Case 3

16 d/o 25-week premature female. Poor response to zinc oxide preparation. Open wounds healed after 7 days of treatment protocol.



Results

Regardless of the barrier ointment utilized, 90% of the infants showed complete resolution of the open wounds and inflammation after 7 days.

One infant reached this goal after treatment was extended for 14 days. In every case, patients exhibited no signs of complications from topical application of pHA to the skin.

Conclusions

This case series illustrates the synergistic benefits of utilizing pHA wound cleaner in healing severe PCD in combination with traditional application of barrier ointments and dressings. The simple intervention was purposely designed to improve nursing compliance and monitor the effects of single daily applications. The addition of pHA expedited healing in patients who were unresponsive to traditional methods alone.

In addition to the findings above, the small study illustrated the positive effects of focusing on basic skin care and diaper hygiene in NICU patients. Such simple routine interventions might prevent contact dermatitis from arising and avoid secondary pain and stress in these fragile patients.

Larger studies are planned to ensure the observed results are reproducible.

References:

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