

The Safe Use of Pure Hypochlorous Acid as a Cleanser of Skin and Wounds on the Premature Infant



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Problem

Premature infants (<37 weeks) have fragile, translucent skin and are sensitive to cleansing agents such as hydrogen peroxide, povidone iodine, Dakin's® Solution, and chlorhexidine.¹ Antibacterial agents such as silver sulfadiazine cannot be used in infants because of the risk of toxicity. Fungal infections occur frequently related to the high humidity necessary for preterm infants. Pure hypochlorous acid* can remove microorganisms and fungi, is non-cytotoxic, and is safe for use around the eyes, ears, mouth, and genitalia. Use with premature infants has not been previously studied.

Methods

Pure hypochlorous acid* was used to treat the skin and wounds on ten premature infants (<37 weeks gestation). Two of these infants required phototherapy (Bili lights) to control bilirubinemia. Wounds included rashes, crusting, and open lesions. Hypochlorous acid* was used for bathing as well as temporary warm wound soaks prior to wound care. Vigorous cleansing was discouraged related to diminished cohesion between the epidermis and dermis in preterm infants.¹

Results

The pure hypochlorous acid* was well tolerated in all patients and no safety issues arose. Skin irritation due to the cleansing did not occur. Bili lights could be used as indicated. Bacterial colonization was controlled and fungal infections did not occur. High humidity was maintained with a decrease of trans-epidermal water loss (TEWL).

Conclusions

Hypochlorous acid* is reported non-cytotoxic and found safe to use with pediatric patients.² This finding provided a foundation to explore further use. The skin pH of a premature infant is 5.6. Pure hypochlorous acid* has pH of 5.1-5.6 making it an ideal agent for use in preterm infants. This series of premature infants demonstrates the safe use of pure hypochlorous acid,* extending the treatment age younger than previously reported in children.²

References

1. Neonatal Skin Care: Evidence-based Clinical Practice Guide, 3rd edition. Association of Women's Health, Obstetrics and Neonatal Nurses.
2. Elsass FT: Adjunctive debridement with hypochlorous acid for healing of complex wounds in children. *Ostomy Wound Manage.* 2016; 62(4): 14-16.
3. Couch KS, Miller C, Clossen LA, Richey KJ, Guinn SJ: Wound bed preparation: Vashe hypochlorous acid wound cleansing solution. *Wound Source White Paper.* 2016; www.woundsource.com



Day 1



Day 1



Day 7



Day 10

Born at 23 week gestational age with open skin lesions and crusting. At one week of age began daily wash with warm hypochlorous acid* and gauze.



Day 1



Day 22



Day 42



Day 53

Born at 24 week gestational age with open wound of unknown etiology on left arm. At one week of age began hypochlorous acid* soaks every other day prior to dressing application.



Day 1



Day 30

Born at 22 weeks gestational age. After development of right ear pressure injury, patient's ear began treatment with warm hypochlorous acid* washes daily.