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BODY AND ORAL HYGIENE PRACTICES IN EDENTULOUS INFANTS: A LITERATURE REVIEW

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Abstract: INTRODUCTION: The skin is a protective barrier that helps thermoregulate and control water loss, an important mechanism for the baby's integrity. In premature newborns, this organ is immature mainly due to the absence of vernix and partial development of the stratum corneum without adequate architecture. For this reason, hygiene care must be well established in order to avoid problems. Likewise, cleaning the oral cavity of edentulous babies requires a guidance protocol in order to guarantee the absorption of immunoglobulins. OBJECTIVES: To investigate the evidence related to body and oral hygiene care for edentulous babies. METHODS: The search for articles was carried out via the Virtual Health Library-BVS Periodicals Portal, in the Medline and Lilacs databases with restriction to Portuguese and English languages, full text, between 2018 and November 2024. The articles were selected based on the following inclusion criteria: randomized clinical trials; non-randomized clinical trials; observational studies and literature reviews. 13 articles met the inclusion criteria regarding the type of study Clinical Practice Guide and the terms used: diaper dermatitis, skin hygiene and skin. RESULTS: The composition of baby skin requires special care, as the epidermis and stratum corneum are thinner. The use of emollients, wet wipes and oils is still controversially described in the literature. Furthermore, cleaning the oral cavity before the eruption of the first tooth is not necessary, since early colonization with bacteria does not increase the prevalence of caries in early childhood. CONCLUSION: The skin and mucosa of newborn babies require special care due to the immaturity of the tissue. The physiological aspects of the skin and oral mucosa are essential for establishing an effective hygiene protocol. However, the recurring controversies in the literature leave doubts as to the correct protocol to follow. More clinical studies are therefore needed to obtain scientific evidence

on the care of babies' oral and body hygiene.

Keywords: Baby; Care; Oral hygiene; Skin.

INTRODUCTION

The skin is a protective barrier that facilitates thermoregulation and helps control transepidermal water loss and electrolyte balance. Its composition is based on the dermis, which is essentially made up of collagen and elastin fibers, providing the skin with resistance, support and elasticity; and the epidermis, which is made up of four sub-layers, including the stratum corneum, which is particularly important because it is the outermost part of the skin. In newborns, this organ requires special care due to the immaturity of the systems and, consequently, the risk of sepsis¹.

Neonatal sepsis is the leading cause of death in premature infants. The skin of premature newborns is immature mainly due to the absence of vernix and partial development of the stratum corneum without adequate architecture. According to the SUS Hospital Information System (SIH/SUS), there were 36,797 hospitalizations in Brazil caused by Skin and Subcutaneous Tissue Diseases in children under one year of age between September 2019 and September 2024². This high number of hospitalizations corroborates the need to establish permanent care for the baby's skin, such as paying attention to bathing and the industrialized products used during hygiene³.

According to Jonhson⁴, delaying the newborn's first bath by 12 to 24 hours offers the benefits of greater parental bonding and successful breastfeeding. And among babies with a family history of atopic dermatitis, regular application of gentle moisturizers to the skin reduces the risk of developing the disease. As for the use of wet wipes, for example, used frequently when changing diapers, they should contain buffers to maintain the slightly acidic pH of the skin, be free of potential irritants and should not contain preservatives.⁵

Cleaning the oral mucosa and tongue of edentulous babies also requires special care. The literature is clear on oral hygiene from the eruption of the first deciduous tooth, approximately 6 months of age, when it indicates the use of fluoride toothpaste and a soft-bristled toothbrush, but it is contradictory as to the care of the edentulous baby.⁶

The oral hygiene of edentulous babies found in the literature is carried out mainly with gauze pads or diaper tips moistened in filtered water, cleaning the baby's lips and tongue. However, there is controversy among health professionals as to whether this technique is indicated, since the immunoglobulins acquired through breastfeeding would be removed⁶. The aim of this study is to provide guidance to pregnant and postpartum women on how to care for the skin and mouth of newborns and infants up to 6 months of age, in order to create effective guidance measures for mothers and caregivers.

METHODOLOGY

The search for articles was carried out via the Virtual Health Library-BVS Periodicals Portal, in the Medline (Online System for the Search and Analysis of Medical Literature) and Lilacs (Latin American and Caribbean Literature in Health Sciences) databases, restricting the languages to Portuguese and English, full text, between 2017 and November 2024. The articles were selected based on the following inclusion criteria: randomized clinical trials; non-randomized clinical trials; observational studies and literature reviews. 13 articles met the inclusion criteria regarding the type of study Clinical Practice Guide and the terms used: diaper dermatitis, skin hygiene and skin. Five paid articles were excluded

The terms "oral hygiene and infant" were also used, with restrictions on the Portuguese language, full text, between 2017 and November 2024. 12 articles met the inclusion criteria.

Five paid-for articles dealing with pre-school children, the association of caries with oncological diseases or hyperthyroidism were excluded.

RESULTS AND DISCUSSION

A total of 21 articles were found in the Virtual Health Library - VHL, but 12 articles met the inclusion criteria, as shown in Table 1.

The studies in this review confirm the need for special skin care for newborns, given the immaturity of this organ. Aredes¹ states that skin care for preterm newborns is a priority aimed at maintaining, preventing and recovering its integrity.

Meszes⁷ also corroborates this when he says that the majority of skin disorders that occur in neonatal intensive care units are due, in part, to the immaturity and vulnerability of neonatal skin. Various iatrogenic diagnostic and therapeutic procedures are also prone to iatrogenic damage. While Cooke⁸ reports that skin care is considered a relatively lower priority compared to prenatal and intrapartum care, but that the increasing prevalence of infant atopic eczema makes it necessary to intervene with greater care.

As for the products used during this hygiene, there is controversy. While Burdall⁹ proposes the use of barrier cream and absorbent diapers, Konar³ states that the application of oil brings benefits to the newborn's skin, as well as the tactile kinesthetic stimulation induced by massage in the form of skin barrier function.

Rodriguez⁵ suggests a composition of healthy wet wipes that can be used on newborn babies. Aesthetically pleasing, with a very high percentage of water. However, he points out that water alone is not enough to effectively remove water-insoluble residues from feces and prevent the growth of microorganisms or maintain a healthy skin pH. It is therefore important that wet wipes also contain an extremely mild surfactant (detergent

Distribution of selected articles

Authors	Title	Objectives	Conclusion	Type of study
Aredes, 2017	Newborn skin care: an integrative review	To describe and analyze the scientific evidence on nursing care for the skin integrity of the preterm newborn.	Despite the variety of products available, there is a lack of evidence for their application in practice.	Bibliographic review
Meszes, 2017	Injuries requiring wound treatment in a central tertiary neonatal intensive care unit	To review the newborns admitted to the neonatal ICU who needed wound treatment.	Dressings and antiseptic agents should be chosen with care when applied to neonates.	Transversal
Cookie, 2017	Skin care for healthy full-term babies: a systematic review of the evidence	To identify which skin practices are important for baby skin protection in healthy full-term babies (0-6 months) and to generate evidence-based conclusions to inform health professionals and parents.	Evidence indicates that there is no difference between the specific products tested and water alone; offering parents a choice in their baby's skin care regime.	Systematic review
Burdall, 2018	Neonatal skin care: Developments in care to maintain neonatal barrier function and prevention of diaper dermatitis	To review the development of different neonatal care practices to maintain the barrier function of the skin, in turn preventing diaper dermatitis.	The literature shows no superiority of one cleaning method over another, but neither the use of wet wipes nor water increases the prevalence of diaper dermatitis. More studies are needed to explore the potential benefit of diaper-free time, taking into account the practicalities, particularly for vulnerable neonates within the Intensive Care setting	Literature Review
Pomini, 2018	Prevalence of caries in babies and its relationship with mothers' knowledge and habits	To verify the association between the prevalence of dental caries in early childhood and the socioeconomic profile and habits of mothers in relation to oral hygiene and the use of toothpaste for their children.	There was no association between maternal oral hygiene habits and the use of toothpaste by their children and the prevalence of early childhood caries. However, there was an association with socioeconomic status, which demonstrates the need for strategies to reinforce the information transmitted to mothers with greater social vulnerability.	Transversal
Jonhson, 2019	Infant skin care: updates and recommendations	Review infant skin care recommendations relevant to pediatric practice	Research is needed to further optimize newborn skin care, especially for the special populations of premature newborns and babies born with severe skin disease.	Literature Review
Konar, 2020	Effect of Virgin Coconut Oil Application on the Skin of Preterm Newborns: A Randomized Controlled Trial	Define the effectiveness of applying coconut oil to mature skin, prevent sepsis, hypothermia and apnea.	The use of coconut oil helps with dermal maturity and better neurodevelopmental outcomes. More studies are needed for universal recommendation	Randomized clinical trial
Rodriguez, 2020	The science behind wet wipes for infant skin: Ingredient review, safety, and efficacy	Review best practices for ingredient selection, safety and efficacy of wet wipes.	Clinical studies have shown that wet wipes adequately use water and cloth, even on premature skin. However, consideration should be given to developing a documented protocol for managing and maintaining healthy diaper skin in extremely premature babies, or infants with an underlying skin condition.	Literature Review
Rogers, 2021	A Quality Improvement Approach to Perineal Skin Care	Implement skin care guidelines and introduce new wet wipes.	Decrease in diaper dermatitis by 16.7%. Newborns tolerated the new wipes without an increase in fungal skin infections.	Bibliographic review
Jesus, 2021	Oral hygiene for edentulous babies and its influence on the oral microbiota: should health professionals recommend it? - critical review	To critically investigate the evidence related to the indication of oral hygiene for edentulous babies.	There are no primary studies that have evaluated the effect of hygiene on the oral microbiota of edentulous babies. It is important to carry out clinical studies in order to obtain scientific evidence on whether or not to indicate oral cavity hygiene for edentulous babies.	Literature Review

Silva, 2022	Knowledge of parents and guardians of children in early childhood about the relationship between diet and caries disease	To analyze the knowledge of parents and guardians of children aged 0 to 71 months about the correlation between caries disease and diet.	Programs such as Saúde na Escola (Health at School) and Melhor em Casa (Better at Home) are important strategies for extending oral health prevention and promotion to the family nucleus.	Qualitative
Barboza, 2024	Influence of socioeconomic factors on the oral hygiene practices of babies in the edentulous phase: a cross-sectional study	Associating the onset of oral hygiene in edentulous babies with socioeconomic factors. The origin of oral hygiene guidance was also investigated	Mothers with a lower level of schooling started oral hygiene for their babies before the onset of PDD, whose guidance was given by lay people, and income had no influence on this practice.	Transversal

Table 1: Articles selected according to the inclusion criteria

Source: author.

or cleanser) to lower surface tension for better cleansing, a preservation system to ensure product freshness before and during use, a pH adjustment system (buffer) to maintain a solution pH similar to infant skin and, optionally, skin-friendly ingredients that reduce friction damage and replenish skin lipids.

Aredes¹ also states that when choosing products, it is necessary to recognize the characteristics of the skin: slightly acidic pH, requiring the use of products of an equal or neutral nature (never alkaline, given the greater likelihood of lesions and infections); incomplete epidermis due to the absence of total formation of the stratum corneum and dermis weakened by low production of elastin and collagen; and immature physiology (deficiency of the immune system inherent in human skin tissue, consistent with the incompleteness of pregnancy). Cooke⁸ confirms that baby skin is also prone to greater transepidermal water loss and reduced hydration of the stratum corneum, reflecting a less effective skin barrier function. Babies have a higher skin surface pH (low acidity) which amplifies protease activity and the breakdown of corneodesmosomes, the connective support components of the stratum corneum.

The work by Rogers¹⁰, provides a standardized perineal care guideline for the prevention and treatment of dermatitis, covering the use of new, preservative-free wet wipes with grapefruit seed extract. The balancing measure was the rate of fungal skin infection during

the use of preservative-free wipes. Between July 2017 and March 2019, 1,070 babies were hospitalized for 1 or more days, 11% of whom were born at less than 30 weeks gestational age. After the guideline was implemented in January 2018, the incidence of dermatitis fell by 16.7%. The incidence of severe cases fell by 34.9%, with a reduction of 3.5 days per 100 patient-days. Newborns tolerated the new wipes without an increase in fungal skin infections. Thus, it is possible to see that the descriptions made by Rodrigues⁵ and Aredes¹ for determining an effective wipe may have been developed by Rogers.¹⁰

Konar³ reported on his experience with coconut oil on babies. In this study it was found that there was an improvement in neonatal skin maturity after the application of coconut oil, but there was also a simultaneous increase in sepsis. However, he states that this study was carried out in an intensive care unit and the increase in the incidence of sepsis may not be due solely to the application of the emollient. The product called Aquaphor was also used. The work states that there are microbicidal properties in coconut oil.

Aredes¹ ratifies the effectiveness of the Aquaphor emollient and compares it with No-sting. Both provide a layer of protection to the skin, were similarly effective in reducing transepidermal water loss, and Aquaphor was statistically superior in terms of skin condition in two of the studies analyzed. The advantage of No-Sting was that it could be sprayed

on every week, while the other product required two applications of the creamy solution a day. This shows the relevance of comparing the different products and their effectiveness in controlling, preventing and treating dermatitis in newborns.

It is also important to consider newborn bathing. According to Johnson⁴, although safe early bathing of full-term babies with environmental controls is possible, delaying the newborn's first bath by 12-24 hours of life offers benefits of increased parental bonding and breastfeeding success. Swaddling every 4 days is an effective bathing strategy for premature newborns. Among babies with a family history of atopic dermatitis, regular application of gentle moisturizers to the skin reduces the risk of developing the disease. For newborns with genetic erosive skin conditions or blisters, the use of specialized dressings and emollients promotes wound healing and helps limit skin damage. Environmental control with humidified incubators helps prevent dehydration.

With regard to the oral hygiene of babies, Pomini¹¹ states that knowledge about the profile and habits related to health, especially oral health in early childhood, contributes to the development of public policies aimed at increasing the population's quality of life. It also states that effective hygiene is not only related to the frequency of hygiene, but also to adequate information on oral hygiene. Thus, it is clear that educating parents about their children's oral hygiene must include, in addition to correct hygiene habits, centered on reinforcing and improving brushing technique, motivational and disciplinary factors and the control of other risk factors, such as diet.

According to Silva¹², the chance of a child who exclusively uses breast milk developing caries would be minimal, but the early use of sucrose in the infant's diet means that the lactose in breast milk is potentiated, increasing

the risk of the disease. Health professionals have an important role to play in providing guidance and information on the benefits of breastfeeding and warning against the incorrect use of industrialized foods used in bottles and juices.

Jesus⁶ reviews the need for oral hygiene in edentulous babies. Taking into account the presence of immunoglobulins in breast milk, he explains that IgA immunoglobulin is the first line of immune defense of the oral mucosa against pathogens. Therefore, early cleaning of the oral cavity of edentulous babies could interfere with the levels of immunoglobulins present, altering the protection of the mucosa, especially in babies who do not yet have large amounts of salivary IgA or those who are not breastfed. He also suggests that cleaning the oral cavity can also compromise protection by interfering with IgA levels. Barborá¹³ gives another reason for not cleaning the mouth early: defense and balance mechanisms resulting from the natural desquamation of mucosal epithelial cells. The neonatal microbiota plays an essential role in the temporary protection of the oral epithelium in the first moments of life. Shortly after birth, exposure to microorganisms challenges the newborn's immune system, while at the same time promoting its maturation and adaptation to the external environment. In addition, the microbiota regulates the transition of the oral epithelium from the neonatal to the adult stage. During this process, the gradual cell renewal of the neonatal oral epithelium is crucial to avoid excessive stimulation, allowing for the proper development of epithelial structures and functions in interaction with the microbiota.¹³

It is clear from the articles discussed in this paper that the use of emollients is important for protecting the skin of newborn babies. However, more studies are needed to confirm the effectiveness of oils or products with test substances. With regard to oral hygiene for edentulous babies, the literature does not cla-

rify the role of breast milk in protecting oral mucous membranes, so it might be interesting to suggest performing oral hygiene with gauze or a diaper moistened with filtered water, once a day, at 6 months of age (close to the eruption of the first teeth), just to get the child used to handling the oral cavity and hygiene. However, there is no evidence to support this recommendation either.

The skin and mucous membranes of newborn babies therefore require special care due to the immaturity of the tissue. The physiological aspects of the skin and oral mucosa are essential for establishing an effective hygiene protocol. However, the recurring controversies in the literature leave doubts as to the correct protocol to follow. More clinical studies are therefore needed to obtain scientific evidence on the care of babies' oral and body hygiene.

REFERENCES

1. Aredes NDA, Santos RCA, Fonseca LMM. Skin care of premature newborns: integrative review. *Rev. eletrônica enferm* 2017; (19): 1-25.
2. Brasil, Ministério da Saúde. Banco de dados do Sistema Único de Saúde-DATASUS. Disponível em <http://www.datasus.gov.br>.
3. Konar MC, Islam K, Roy A, Ghosh T. Effect of Virgin Coconut Oil Application on the Skin of Preterm Newborns: A Randomized Controlled Trial. *Journal of Tropical Pediatrics* 2017; 66 (2): 129–135.
4. Johnson E, Hunt R. Infant skin care: updates and recommendations. *Curr Opin Pediatr* 2019; 31(4):476-481.
5. Rodriguez KJ, Cunningham C, Foxenberg R, Hoffman D, Vongs R. The science behind wet wipes for infant skin: Ingredient review, safety, and efficacy. *Pediatric Dermatology* 2020; 37:447–454.
6. Jesus DM, Barbosa LL, Parisotto TM, Santos RL, Carlo HL, Carvalho FG. A higiene bucal de bebês edêntulos e sua influência na microbiota bucal: os profissionais de saúde devem preconizá-la? – revisão crítica. *Revista da Faculdade de Odontologia de Porto Alegre* 2021; 62(1): 108-120.
7. Meszes A, Tálósi G, Máder K. Lesions requiring wound management in a central tertiary neonatal intensive care unit. *World J Pediatr* 2017; 13: 165–172.
8. Cooke A, Bedwell C, Campbell M, McGowan L, Ersser SJ, Lavender T. Skin care for healthy babies at term: A systematic review of the evidence. *Midwifery*. 2018; 56: 29-43.
9. Burdall O, Willgress L, Goad N. Neonatal skin care: Developments in care to maintain neonatal barrier function and prevention of diaper dermatitis. *Pediatr Dermatol* 2019; 36(1): 31-35.
10. Rogers S, Thomas M, Chan B, Hinckley SK, Henderson C. A Quality Improvement Approach to Perineal Skin Care: Using Standardized Guidelines and Novel Diaper Wipes to Reduce Diaper Dermatitis in NICU Infants. *Adv Neonatal Care* 2021; 21(3):189-197.
11. Pomini MC, Galvan J, Dias GF, Gouvêa NS, Alves FBT. Prevalência de cárie em bebês e sua relação com o conhecimento e hábitos das mães. *Arq Odontol, Belo Horizonte* 2018; 54 (16): 1-9.
12. Silva JMD, Nobre FC, Silva DF, Fernandes DC. Knowledge of parents and caregivers of early childhood children about the relationship between food and caries disease. *Rev. Ciênc. Méd. Biol* 2022; 21(1): 67-72.
13. Barboza, R. R., Oliveira, Í. M. C., Lanna, A. F. N., Figueiredo, N. D., Fróes, C. I. R., Vollú, A. L., & Fonseca-Gonçalves, A. (2023). Influência de fatores socioeconômicos na prática de higiene bucal de bebês na fase edêntula: um estudo transversal. *Revista Científica do CRO-RJ (Rio de Janeiro Dental Journal)*, 8(3), 70–75. <https://doi.org/10.29327/244963.8.3-7>