Prevention and treatment of diaper dermatitis. A literature study

Lindsey Höfkens RN, Marjorie de Neef MSc RN (l.l.hofkens@amc.nl)

Paediatric Intensive Care Unit, Emma Children's Hospital, Amsterdam UMC, University of Amsterdam, Amsterdam, The Netherlands

Background and aims Diaper dermatitis (DD) is a cutaneous inflammation within the confines of the diaper caused by moisture, friction and irritation. In some cases fungal infection may play a role in the pathogenesis. Critical illness is a risk factor for altered skin integrity and as a result these children are more susceptible to DD. Despite improvements in the design of disposable diapers and the use of skin barrier protection, the incidence of DD in infants remains at 25-50%. DD care is often based on personal experience and habits, which may not reflect the evidence based approach. The aim of this literature study is to critically appraise the literature on prevention and treatment of DD in infants.

Methods A systematic literature search was performed in PubMed and the Cochrane Library. Search terms were infants, newborn, diaper rash, diaper dermatitis, napkin dermatitis, zinc-oxide. The identified records were screened by two independent Investigators (LH, MN).

Results Thirty-three articles were identified. Five articles comparing therapeutic effectiveness of different treatments were included. Applying petroleum jelly and frequent diaper changing were beneficial in prevention of DD. Concerning the use of baby-wipes vs wet gauze, there was no significant difference in incidence and severity of DD. For the treatment of fungal DD, clotrimazole appeared to be more effective than nystatin. The implementation of an evidence based skin care guideline proved to significantly reduce the incidence of DD. After a literature study Heimall et al. designed a treatment protocol for prevention and treatment of DD. Following implementation of this protocol the incidence of DD decreased from 24% to 11%.

Various protective and risk factors for DD are described in the literature. Protective factors are phototherapy and lactation. Risk factors include medication that causes diarrhea, underlying diagnoses, gastrointestinal anomalies, genetic abnormalities and a poor nutritional status.

Skin Assessment	• Intact skin • No erythema	• Intact skin • High risk for skin breakdown due to causticity of stool (short gut, post pull through or ostomy closure) • With or without erythema	• Intact skin • Erythema • No Candida**	• Intact skin • Erythema • Evidence of Candida**	• Denuded skin* • No Candida**	• Denuded skin* • Evidence of Candida**†

Goal of Treatment	Prevent skin breakdown	Prevent skin breakdown; Provide barrier	Prevent skin breakdown; Provide barrier	Prevent skin breakdown; Treat Candida; Provide barrier	Prevent further skin breakdown; Provide barrier	Prevent further skin breakdown; Treat Candida; Provide barrier
No-Sting Barrier film may be applied prior to application of any of the below products (in patients > 28 days old)						
Treatment	Vaseline	Triple Paste OR Ilex then Vaseline	Desitin	Antifungal then Desitin	Stomahesive powder then Triple Paste OR Stomahesive powder then Ilex then Vaseline OR One of the above plus "crusting technique"	Antifungal then Triple Paste OR Antifungal then Ilex then Vaseline OR One of the above plus "crusting technique"
	Apply a thick layer of Vaseline over the entire area to be protected. (think "icing on a cake")	Apply a thick (think "icing on a cake") layer of Triple Paste or Ilex. For Ilex: • "Press" into place rather than "spreading." • Apply a thick layer of Vaseline on top of Ilex. Vaseline prevents Ilex from sticking to diaper. With each diaper change: • Only remove stool, try to leave layer of Ilex/Vaseline in place. • Replace the product that came off: – Skin showing: Replace Ilex, then Vaseline. – Ilex showing: Replace Vaseline.	Apply a thick layer Desitin over the entire area to be protected. (think "icing on a cake")	Apply antifungal, then apply a thick layer of Desitin over the entire area to be protected. (think "icing on a cake")	Apply a thin layer of Stomahesive powder to denuded areas. Brush off excess. Powder will stick to the open skin. Then apply thick layer of Triple Paste OR Ilex (press into place) on top of Stomahesive powder. For Ilex: • Apply a thick layer of Vaseline on top of Ilex. Vaseline prevents Ilex from sticking to diaper. With each diaper change: • Only remove stool, try to leave layer of Ilex/Vaseline in place. • Replace product that came off: – Skin showing: Replace Stomahesive powder, then Ilex, then Vaseline. – Ilex showing: Replace Vaseline. Crusting Technique: Stomahesive powder, then seal with No Sting, repeat, then layer Triple paste or Ilex/Vaseline	Follow application instructions at left using antifungal powder in place of Stomahesive powder.

Heimall LM et al 2012

Conclusions

DD is a common problem on the pediatric intensive care unit, and high level evidence for prevention and treatment is scarce. In the literature there is a wide variation in interventions. More research is required to enable development of evidence-based recommendations. An evidence based protocol has been shown to be effective in the prevention of unnecessary variation in patient care. This reduces the uncertainty and anxiety among parents and nurses.