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Yenidoğanda Epidermolizis Bülloza Dermal Lezyonları Üzerine Topikal Anne Sütü Uygulamasının Yararlı Rolü: Bir Ön Deneyim

The Beneficial Role of Topical Breast Milk Application on Dermal Lesions of Epidermolysis Bullosa in a Newborn: A Preliminary Experience

Esra Damar¹, Ayse S Turkmen², Muhammed Y Kilinc³

¹MSc Student of Pediatric Nursing, Karamanoglu Mehmetbey University, Institute of Health Sciences, Karaman,

²Karamanoglu Mehmetbey University Health Science Faculty Child Health Nursing Department, Karaman,

³Neonatology Fellow, Selcuk University, Division of Neonatology, Konya.

Abstract

Introduction: The nutritional, immunological and psychological effects of breast milk (BM) are well known with its both nutritional and health benefits on neonates and infants. Additionally, there have been several reports regarding incremental role of BM application in the management of dermatological conditions such as diaper cord rash, atopic eczema, diaper dermatitis and umbilical cord separation. However, according to best of our knowledge BM has not been applied on dermal Epidermolysis Bullosa (EB) lesions to date. Therefore, herein we aimed to report our initial experience with BM on dermal EB lesions in a neonate.

Methods: One-day-old male term newborn was referred to Neonate Intensive Care Unit of our institution with bullous skin lesions overall the body. The baby was diagnosed with EB after Pediatric Dermatology consultation from the same university. Initially, Vaseline oil cream (Unilever, Blackfriars, London, UK) was applied for the skin care. In order to determine the effect of BM on wound healing, parents were informed and potential benefits were discussed, and then their subsequent consent were obtained for BM treatment. To assess wound healing and comparison, face and left hand were covered with BM firstly where Vaseline oil had not been applied. In order to compare the rate of recovery, BM treated regions and Vaseline cream applied areas were analyzed and compared, visually. After application of BM, the neonate was observed for 72 hours in terms for wound healing.

Results:

A noticeable improvement was observed in the areas where breast milk was applied in the third day of treatment in comparison to Vaseline covered areas.

Conclusions: BM was promising in healing process of the skin lesions caused by EB according to our initial impression. However, since the application is only limited with a single case, wider cohorts are needed for better understanding of BM's benefit on wound healing in dermal manifestation of EB lesions.

Keywords: Epidermolysis bullosa, breast milk, wound healing

ÖZET

Amaç:

Bu olgu sunumu topikal ilaçların yerine doğal ve bebek için çok değerli olan anne sütünün yara iyileşmesindeki etkisini belirlemek amacı ile yapıldı.

Yöntem:

Konjenital epidermolizis bülloza tanıılı bebek A.Ö. anne sütünün yara iyileşmesindeki etkisini belirlemek amacı ile gözlem altına alındı. Çalışmaya başlamadan önce aile ile görüşülerek çalışmaya katılımları için izinleri alındı. Yara iyileşmesini etkin gözlemleyebilmek için bebeğin giysilerinin daha az olduğu ve krem sürülmeyen yüz ve sol el bölgelerine anne sütü uygulaması yapıldı. İyileşme hızını karşılaştırmak amacı ile diğer bölgelerine de krem uygulandı. Bebeğin bakım uygulamaları hastane rutinlerine uygun şekilde yürütüldü. Uygulama sonrası bebekler yara iyileşmesi açısından 72 saat boyunca gözlendi ve görüntüleri karşılaştırıldı.

Bulgular:

Bebek A.Ö'nün uygulamanın üçüncü günündeki değerlendirmesinde anne sütü uygulanan bölgelerinde özellikle yüz bölgesinde gözle görülür bir iyileşmenin olduğu ve dokuların hızla kendini yeniledikleri gözlendi.

Sonuç:

Anne sütünün epidermolizis büllozaya bağlı oluşan yaraların iyileşmesinde etkili bulunmuştur. Ancak uygulama tek vaka ile sınırlı tutulduğundan aynı uygulamanın daha geniş popülasyonla yeniden denemesi önerilmektedir.

Anahtar kelimeler: Epidermolizis bülloza, anne sütü, yara iyileşmesi

Introduction

Epidermolysis bullosa (EB) is a rare genetically transmitted disease characterized by skin fragility and blisters on the skin/mucous membranes as a response to local trauma affecting 8-19 individuals per million (1). It is caused by the lack of structural proteins in the epidermal layer of skin that normally adhere to the epidermis. The EB inheritance pattern is basically divided into three types according to the location of the lesions as well as the level of puffiness of the skin including; simplex, merger and dystrophic (1,2). Specific subgroups of EB are determined by the proteins encoded by abnormal genes (1,2).

There is no definitive cure identified for EB, to date. Supportive treatment is advised to sufferers such as trauma protection and various topical agents as well as genetic counseling in order to monitor the rest of the family members. As a result of skin barrier deterioration, the patients are susceptible to infections as seen in our case. In such circumstances, topical agents are utilized for prophylactic purposes against secondary infections while maintaining skin integrity.

Breast milk (BM) is commonly used for nutritional purposes in infants. However, the benefits are not only limited with alimentation. For example, Kramer and her colleagues have shown that Immunoglobulin A in the content of BM has a preventive effect against skin infections despite they did not (3). The reported forms of topical application of BM are umbilical, diaper and eye care (4,5). Despite the usage of BM on belly care is known as the traditional method of choice, it has now yet taken place in the literature. BM has been shown as an economic alternative to diaper care and it has been shown to be helpful despite the rate of recovery was slightly behind compared to zinc-based creams (6,7). Therefore, we hypothesized that BM may promote healing in the skin manifestation in a neonate with EB.

Case Presentation

A term 1-day-old male newborn was referred to our institution with the preliminary diagnosis of EB due to disseminated bullous lesions covering all over the body. He had a positive family history of the similar skin lesions in his 3 year-old brother. He was weighted 2500 gr in the initial submission. Physical examination revealed an open anterior fontanel, a 3/5 unit of heart murmur, normal two arteries and one vein in umbilicus, normal range of movements of hips

with descended testicles in the scrotum. There were widespread blistering skin lesions in the face, thoracic cage wall, thighs, extremities as well as oral mucosa in the erythematous background some of which showed incrustations.

Umbilical vein and umbilical artery were maintained opened intentionally since the vascular access from the extremities for this baby could be traumatic considering the extensive skin lesions. The lesions were consulted with dermatology and he was prescribed topical creams containing Fucidic acid and Triticum Vulgare extract those applied three times a day to the skin lesions. Additionally, multi-skin cultures and second opinion from ophthalmology and gastroenterology were sought. After topical treatment with the recommended medications, the first tissue cultures were negative. However, there was bacterial growth during the following days of hospitalization in the blood culture. Thus, a second diagnosis of sepsis was made in the follow-up which was managed successfully with parenteral Amicasin and Vancomycin.

After full recovery from sepsis, the patient was treated with topical BM from his mother before each breast feeding. The physicians and nurses were aware of skin regions where Vaseline oil cream (Unilever, Blackfriars, London, UK) were applied and where BM were administrated (fascial and left hand skin surface).

The findings of the study were evaluated through photographs before (Fig. 1) and after 72 hours (Fig. 2) application of BM or Vaseline oil cream.



Figure 1. (A) Picture depicting fascial status before treatment. (B) The photographic image taken from dorsal side of left hand.



Figure 2. Photographic images obtained after 72 hours following breast milk application. (A) fascial and left hand (B) status.

There was a significant healing best appreciated after 72 hours. Since venous access was supplied dorsal side of the left hand, we stopped topical BM treatment, consequently. Interestingly, there was a relapse of blisters on the left hand adjacent to needle insertion region which was stimulated by local trauma.

Discussion

EB is a serious dermatologic condition primarily caused by gene mutation that leads lack of adhesive protein in epidermal layer of the skin. It is not only seen in congenital form in neonates or infants, but may also be observed in elders secondary to drug reactions. Since local skin irritation precipitates blisters and bullous lesions, as seen in the presented case, cases diagnosed with congenital EB should be protected against dermatologic trauma. Moreover, a skin lesion caused EB may lead to a security/integrity breach which may be further progress to secondary infections. Unfortunately, the present case suffered from sepsis that had to be managed with parenteral antibiotics.

Breast milk has been proven to reduce infection by oral intake thanks to secretory Immunoglobulin A and other various ingredients. Apart from oral intake, there was no difference in the comparison of topical diaper rash, belly care and eye care with pomade and sprays that are normally routinely applied. Based on these evidences, it was considered that breast milk may have positive effects on wound healing with topical application.

Interestingly and thankfully, the mother of our baby had plenty of BM which did not interfere with the nutritional status of the remaining BM. Our responsive and knowledgeable mother kept her BM under the right conditions by storing it in a refrigerator after each milking making BM every time available and fresh.

In the presented case, we have successfully achieved visible improvement after topical application of BM on EB skin lesions. One major drawback resides in the methodology that we did not frequently monitor skin changes with photography. Second limitation is that we lack histopathological confirmation. Since the patient has already diagnosed with EB given the positive family history and trauma induced blistering skin lesions, there was no doubt about the primary underlying pathology. We refrained from skin biopsy due to the septic condition of our case. Histologic confirmation from the BM and Vaseline applied different skin regions would be undoubtedly great adjunct and would have provided better insight about the incremental role of BM application. Thirdly, this is a preliminary impression from a one case based experience. Further studies with larger cohorts are needed for a robust results. Finally, the glucose content of breast milk could have been a source for bacterial overgrowth and subsequent skin infection. However, we as a whole team, kept hygienic measures too tightly and fortunately no secondary skin infection was observed.

Conclusion

The constellation of these findings gave as the preliminary impression that breast milk application of Epidermolysis Bullosa skin lesions are promising. Undoubtedly, higher number of the cases with histologic confirmation is mandatory in order to find a robust correlation.

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