Effects of Application of Vitamin E Ointment to premature Neonates’ Skin: Preliminary Data
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The immature skin of preterm infants is ineffective as epidermal barrier, that favours water and warm loss and increases the risk of bacterial and fungal infections. Premature infants’ skin is dry and often develops peeling and scaling dermatitis, partly due to a local cell membrane peroxidation. Vitamin E is a normal constituent of cell membrane that has been found to reduce cell membrane peroxidation in the skin.

**Aim of the study.** To evaluate the effect of a cutaneous application of vitamin E ointment on the effectiveness of epidermal barrier, skin hydration, surface lipids amount, dermatitis occurrence and cutaneous microflora.

**Design.** The neonates (GA 24-33 wk; BW 760-1830 gm), were enrolled in the study during the first 3 days of life. The entire body, except the face and the right leg, was treated twice a day for 2 weeks with a thin coat of pure tocopherol - acetate ointment (VEA Spray®, Hulka, Italy). All the infants were placed in incubator, whose temperature was set to maintain a normal body temperature and whose relative humidity was set to 60%. We measured transepidermal water loss (TWL; Tewameter, TM 210°, Courage and Khazaka, Germany) skin capacitance (as a measure of stratum corneum hydration, Corneometer CM 820°, Courage and Khazaka, Germany) and surface lipid amount (Sedometer CM 820°, Courage and Khazaka, Germany) 30 minutes and 1.2, and 6 hours after the application of ointment. All the patients were studied again after 3, 7 and 14 days of treatment. Skin condition was evaluated using a grading score (SCGS) ranging from 0 (normal skin) to 9 (erythematous, crusting, oozing skin). All the measurements were performed on left and right leg using the values found in the right leg as control. Skin specimens for cultures were obtained before the start of treatment and two times a week.

**Results.** Three patients were affected by RDS, 1 by VSD and 1 by fungal sepsis. TWL did not change significantly in treated and not treated area, both after the first and the subsequent days of treatment, ranging from 19.5 to 26.5 gm/m2h. Skin capacitance were higher (p< 0.05) in treated leg after 30 and 60 minutes on day 3, 7, and 14. The surface lipid amount was always higher (p< 0.05) in treated area than in not treated area and decreased progressively during the study period. The SCGS was similar in treated and not treated area on the 1st day of treatment, but became significantly higher (p<0.05) in not treated area on 3rd, 7th and 14th day of vitamin E treatment. The bacterial and fungal skin cultures revealed a non-statistically-significant difference between treated and not-treated area.

**Conclusion** Topical application of a pure vitamin E ointment does not affect the epidermal barrier function of premature neonates’ skin, increases its hydration and surface lipids, and reduces significantly the incidence of dermatitis without influencing cutaneous microflora.

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