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Elaboration of a 10% sodium thiosulfate w/o topical cream for the treatment of calcinosis cutis in two premature neonates

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Background

Calcinosis cutis is caused by accumulation of calcium salts in the tissues, with subcutaneous nodules, atrophy and ulceration over the affected area. The therapeutic approach is not clearly established, particularly in neonates.

Purpose

- Treating calcinosis cutis in a topical non-invasive way in two premature neonates and describing their clinical evolution.
- Developing a Standard Operating Procedure (SOP) for compounding a 10% sodium thiosulfate W/O topical cream.

Material and methods

A systematic bibliographic search looking for available therapeutic options was made. An article by M.A. Pérez-Moreno et al. was found, describing the elaboration procedure of a 10% sodium thiosulfate W/O cream and its use in a six-year old child with calcinosis cutis. However, no evidence was found regarding topical treatment of calcinosis cutis in neonates.

Risks and benefits of using the topical formula in premature neonates were assessed: excipients were found to be suitable and the risk of incremented absorption was considered acceptable.

It was decided to reproduce the formula for its use in two cases of IV calcium extravasation (confirmed by echography and clinical signs) in two premature neonates (born at 31 and 34 weeks).

Modus operandi consisted in:

- Dissolving 10 g of pentahydrated sodium thiosulfate in 10 mL of distilled water.
- Adding it to the external oil phase (a commercial cold cream (COLDBASE®) was used qs 100 g).
- Mixing it until an homogeneous W/O emulsion was obtained.

Results

The elaboration process was simple and the resultant cream homogeneous and with suitable organoleptic characteristics.

Clinical evolution was satisfactory in both patients, gradually reducing visible injuries, subcutaneous calcifications, induration and swelling. Both patients regained arm mobility completely.

Conclusion

Treatment of calcinosis cutis with topical sodium thiosulfate resulted safe and effective in both patients. Clinical benefit in premature patients was thereby confirmed in these cases.

REFERENCES AND/OR ACKNOWLEDGEMENTS

M.A. Pérez-Moreno, C. Álvarez del Vayo-Benito, S. Flores-Moreno, J. Bernabeu-Wittel. 2014. Calcinosis cutánea grave tratada exitosamente con una fórmula magistral tópica W/O de tiosulfato sódico al 10%. Acta Pediatr Esp. 2014; 72(1): e9-e10