EFFECTIVENESS OF A TOPICAL SIROLIMUS FORMULATION IN PATIENTS WITH TUBEROUS SCLEROSIS

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BACKGROUND

Sirolimus is an immunosuppressant used with an off-label indication for angiofibromas in tuberous sclerosis

PURPOSE

To evaluate the effectiveness of topical sirolimus 0.4% ointment for the treatment of angiofibromas in tuberous sclerosis

MATERIAL AND METHODS

Prospective study of 2 female patients (10 and 46 years old), diagnosed with tuberous sclerosis, which presented facial angiofibromas. The dermatology unit requested the preparation of a topical sirolimus 0.4% ointment, after unsuccessful non-pharmacological measures.

We prepared the formulation, following a literature search, in a vertical laminar flow booth, by packaging in jars of ointment protected from light, conserved in ambient temperature with an expiration date of 2 months.

The dermatologist monitored the effectiveness of the treatment by conducting authorised iconography at 3 and 6 months.

RESULTS

Based on the information obtained in the research and because of the difficulty in obtaining raw materials, we elaborated sirolimus 0.4% ointment 20 g using 40 tablets of 2 mg sirolimus (Rapamune) which were milled and sieved to obtain fine powder. After that, mineral oil sufficient to dissolve the active substance and form a paste was added, and it was completed with petrolatum. Despite the sieving, the resulting formulation had a granulated texture due to the film coated tablets of Rapamune and patients noted difficulty in administration. To avoid this problem, we acquired sirolimus as a product from Acofarma SCI, improving the cosmetic appearance of the formulation and facilitating its elaboration.

After 3 months

- Both patients reported a fewer number of lesions with less erythema, most evident during the first month of application, which was corroborated by the dermatologist by comparison with previous iconography

After 6 months

- The improvement persisted, presenting even lower total numbers of lesions, with reduced erythema in the remaining angiofibromas, which were no longer palpable

Tolerance was excellent. Patients reported better cutaneous absorption and better cosmetic appearance of the second ointment, despite the fact that administration remained difficult due to the use of petrolatum (lipophilic).

CONCLUSION

1. Sirolimus 0.4% ointment was found to be effective for treating angiofibromas in tuberous sclerosis, as both patients had a decrease in the number, elevation and erythema of their angiofibromas.

2. Formulation from the raw material improved its cosmetic appearance. Nevertheless, it would be interesting to develop a formula with hydrophilic excipients which facilitated administration and improved its organoleptic characteristics.