# FORMULATION AND GALENIC CHARACTERISATION OF A TACROLIMUS ADHESIVE GEL FOR TREATMENT OF ULCERATIVE PROCTITIS

M.F. PÉREZ ALMAGRO[1], C. PERELLÓ ALOMAR[1], M.M. SANTANDREU ESTELRICH[1], M. ORTIZ GONZÁLEZ[1], M. GÓMEZ ZAMORA[1], E. RODRÍGUEZ CAMPOS[1], B. GARCÍA GARCÍA[2], F.J. CÁMARA AGUILERA[2], O. DELGADO SÁNCHEZ[1].
[1]HOSPITAL UNIVERSITARIO SON ESPASES, HOSPITAL PHARMACY, PALMA DE MALLORCA, SPAIN.
[2]HOSPITAL UNIVERSITARIO SON ESPASES, LABORATORY MEDICINE DEPARTMENT, PALMA DE MALLORCA, SPAIN.

## Background and importance

Ulcerative proctitis is associated with fecal incontinence, pain, itching, bleeding, purulent discharge; is often managed with topical salicylates or steroids, but treatment may be refractory in some patients. Rectal administration of tacrolimus may be effective in difficult-to-treat ulcerative proctitis. Some patients find it difficult to retain rectal pharmaceutical forms, suppositories or enemas, which lead to painful administration and infradosification.

## Material and methods

Tacrolimus 0,06% adhesive gel was compounded in a biological safety cabinet with tacrolimus 5 mg capsules (Prograf®), glycerin and a lipophilic gel. The compounded drug was packed on monodoses of 4,5 g with the aim to administer 2 mg of tacrolimus, in a 5 ml latex-free luer-lock syringes. Each syringe was supplied with a rectal cannule for pacient administration (1 g of gel is retained in the cannule). Tacrolimus gel was storage at room temperature, in a dry place and protected from light.
Galenic characterization was carried out, according to good manufacturing practices, testing homogeneity and appearance, extensibility, pH, and monodose mass extraction, weekly during 28 days.

## Aim and objectives

To develop a tacrolimus adhesive gel and its galenic validation, to improve and extend contact time of tacrolimus with rectal mucosal surface.

## Results

For 28 days at room temperature: tacrolimus gel kept the same appearance (granular, translucent and colourless), no quite different values of extensibility were shown and the pH (5,99) and monodose mass extraction (3,50 g) results differed minimally (less than a 5-10% difference).



| | | Day 1 | Day 7 | Day 14 | Day 21 | Day 28 |
|---|---|---|---|---|---|---|
| Extensibility (mm2) | Base | 106,78 | 101 | 132,73 | 113,1 | 119,2 |
| | +10 g | 136,02 | 139,76 | 146,55 | 146,55 | 143,1 |
| | +20 g | 153,5 | 161,4 | 157,47 | 165,05 | 165,13 |
| Weight (g) | | 3,5 | 3,5 | 3,47 | 3,2 | 3,4 |
| pH | | 5,99 | 5,96 | 5,94 | 6,02 | 6,53 |

## Conclusion and relevance

This gel preparation is stable for 28 days at room temperature, maintaining its galenic characteristics and it can be useful in patients with difficult-to-treat ulcerative proctitis.

Jaeger SU. et al. Tacrolimus Suppositories in Therapy-Resistant Ulcerative Proctitis. Inflamm Intest Dis 2018;3:116-124. DOI:10.1159/000493979
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