Lack of Systemic Absorption of Topical Mechlorethamine Gel in Patients with Mycosis Fungoides Cutaneous T-Cell Lymphoma

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Background

Chlormethine/mechlorethamine gel was approved for treatment of patients with stage IA–IB MF in the US. In Europe, approval was granted for all adult MF patients. **MF** is a cutaneous T-cell lymphoma that causes skin lesions.

Chlormethine/mechlorethamine gel is an alkylating agent which **inhibits** predominantly rapidly proliferating malignant skin T-cells through the induction of DNA breaks, leading to **apoptosis**

Study methods

Plasma samples were analyzed from **two clinical studies** testing once-daily mechlorethamine gel administration

Study 201

Plasma from 23 patients (16 from gel arm, 7 from ointment arm)

0.02% chlormethine/ mechlorethamine gel vs. compounded ointment

Sample collection:

- Before application at baseline visit
- 1, 3, and 6 h after first application
- Before application at 1-month follow-up

Chlormethine/mechlorethamine was quantified via HPLC (**LLOD 41.5 ng/ml**)

Hematologic/biochemical parameters were analyzed at baseline and at Month 4, 8, and 12 (or final visit)

Study 202

Plasma from 15 patients who lacked a complete response in Study 201

0.04% chlormethine/ mechlorethamine gel

Sample collection:

- Before application at baseline visit
- 1 h after application at baseline (or Month 2 or 4 if trial already started)
- Before or 1 h after application at next visit (Month 4 or 6)

Chlormethine/mechlorethamine was quantified via HPLC (**LLOD 5 ng/ml**)

Hematologic/biochemical parameters were analyzed at baseline and final/ termination visit (up to 7 months)

There was no overlap between the cohorts from study 201 and study 202

Results

No alterations in blood parameters

No chlormethine/mechlorethamine in any plasma samples

No systemic AEs

Manageable skin-related AEs (folliculitis, dermatitis, erythema, and eczema)

Main limitations

Small patient population

Tested only a regimen of once-daily 0.02% or 0.04% chlormethine/mechlorethamine gel

Conclusions

Topical chlormethine/mechlorethamine gel had a **good safety profile** and could be used long-term without requiring blood monitoring or hospital visits, as drug-drug interaction is unlikely **given the absence of evidence on systemic absorption**

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AE, adverse event; HPLC, high performance liquid chromatography; LLOD, lower limit of detection; MF, mycosis fungoides. [1] Chang Y et al. *JID Innov*. 2021;2:100069.