**Introduction**

Mycosis fungoides (MF) is the most frequent form of primary cutaneous lymphoma. The main treatment strategies for early MF are skin-directed therapies including very potent corticosteroids, topical chemotherapies (carmustine, nitrogen mustard), topical retinoids, TLR-agonists (imiquimod, resiquimod), PUVA, UVB and total body electron beam therapy (TBEBT). Photodynamic therapy, excimer laser, topical methotrexate/laurocapram, calcineurin inhibitors and ingenol mebutate have been evaluated in small series. Oral or intramuscular methotrexate (MTX) is the usual next-in-line systemic agent if skin-directed therapies fail, but is associated with potential systemic adverse effects (myelosuppression, hepatotoxicity, renal toxicity and pulmonary restrictive syndrome).

The MEDDROP device increases the epidermal permeability using a pulsed flow of pure oxygen together with a MTX cartridge. The efficacy and safety of the MEDDROP-MTX system was assessed in a pilot study involving 13 patients with early MF.

**Material and Methods**

In the 13 patients, a total of 15 target lesions up to 25x25 cm was selected. Standardized photographs and skin biopsies were performed before and after treatment. The treatment was applied once a week for 4 weeks. Two patients were selected for a PK study. Clinical responses and tolerance were evaluated after each treatment. Relapse rates were measured.

**Results**

A partial or complete clinical response was observed in 15 of 15 target lesions with a regression of the lesion elevation, erythema, size and scaling, significant improvement of pruritus. A post-inflammatory hyperpigmentation appeared in all the patients. Histology revealed a regression of the inflammatory infiltrate and the number atypical lymphocytes. The local tolerance was excellent. Blood levels of MTX were undetectable at 24, 48 and 72 hours. At 9 months post-therapy, 6/15 target lesions had relapsed.

**Discussion**

This pilot study showed the clinical feasability, efficacy and safety of MEDDROP-MTX in a small cohort of patients with early MF. This method allows to benefit of the pharmacological properties of MTX while avoiding systemic adverse effects.