Formulation and transdermal delivery of aciclovir and ketoconazole for HIV/AIDS patients

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Due to their compromised immune systems, HIV/AIDS-infected individuals are more susceptible to skin infections. Since fungal and viral cutaneous manifestations are frequently encountered in combination in HIV/AIDS patients, it is appropriate to formulate a topical product containing both ketoconazole (antifungal) and aciclovir (antiviral).

The efficacy of the novel Pheroid technology system was investigated, for the topical delivery of ketoconazole (2\% w/w) and aciclovir (5\% w/w). Four formulations containing both ketoconazole and aciclovir were prepared, namely cream and emulgel with and without Pheroid. Full-thickness abdominal skin was used for the in-vitro studies. The donor compartments were each filled with $\pm$ 1 ml of the formulation in at least nine vertical Franz diffusion cells. The entire contents of the receptor compartments were withdrawn and replaced with PBS (pH 7.4, 37\degree C) at predetermined times. It was expected that the Pheroid would promote the permeation of aciclovir and ketoconazole, thus the withdrawal times were started earlier. Each sample was directly assayed by HPLC.

The results demonstrated that the transdermal flux, epidermal and dermal penetration of aciclovir was enhanced by the Pheroid cream formulation. Ketoconazole's transdermal flux, as well as delivery to the epidermal and dermal layers of the skin, was improved by the Pheroid emulgel formula. The topical delivery of ketoconazole and aciclovir was thus enhanced by Pheroid technology.