

Absorption of transdermal cyclosporine versus orally administered cyclosporine in six healthy cats

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Abstract: Cyclosporine is a commonly used oral medication in the treatment of feline dermatoses. Due to the difficulty of administering oral medications in cats, compounded transdermal cyclosporine is prescribed by veterinarians, although human studies show limited transdermal absorption. The objective of this pilot study was to compare blood cyclosporine concentrations (Atopica: Novartis Animal Health, Greensboro, NC) after oral administration to blood cyclosporine concentrations after a compounded transdermal formulation. Cyclosporine was given orally at 5.1 to 7.4 mg/kg once daily for 7 days to six healthy cats. On day 7, cyclosporine was measured in whole blood samples collected 2 and 12 h post dosing. Cyclosporine was detected using a monoclonal based immunoassay (limit of quantitation = 25 ng/ml). After a 2 week washout period, cyclosporine concentrations were measured, and 0.1 ml (5.1-7.4 mg/kg) of transdermal cyclosporine, formulated in pluronic lecithin organogel at 250 mg/ml, was applied to the non-haired portion of the pinna once daily on each cat for 21 days. Cyclosporine was measured 2 and 12 h post dosing on day 7, 14, and 21. Median oral-dosed cyclosporine concentration (ng/ml) at 2 h on day 7 was 2208 (range 1357 to 3419). Median transdermal-dosed cyclosporine concentration at 2 h on day 7 was 37 (range 25 to 290) and for day 21 was 58 (range 51 to 878). Concentrations were quantifiable for transdermal cyclosporine, but concentrations were only therapeutic in 1/6 cats. Based on the results of this study, transdermal cyclosporine should not be recommended in cats because of inconsistent absorption.

Medications were donated by Roadrunner Pharmacy and Novartis.