

Abstract

Journal of Veterinary Internal Medicine

Volume 18, Issue 5, pages 651–655, September 2004

Efficacy and Safety of Transdermal Methimazole in the Treatment of Cats with Hyperthyroidism

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The objective of this study was to determine whether transdermal methimazole was as safe and effective as oral methimazole for the control of hyperthyroidism in cats. Forty-seven cats with newly diagnosed hyperthyroidism were randomized to receive either transdermal methimazole in pluronic lecithin organogel (PLO; applied to the inner pinna), or oral methimazole (2.5 mg q12h for either route). Cats were evaluated at weeks 0, 2, and 4 with a physical exam, body weight determination, CBC, biochemical panel, urinalysis, measurement of total levothyroxine (T₄) concentration, indirect Doppler blood pressure determination, and completion of an owner questionnaire. Data between the 2 groups and over time were compared by nonparametric methods. Forty-four cats followed the protocol (17 oral and 27 transdermal). Significantly more cats treated with oral methimazole had serum T₄ concentrations within the reference range after 2 weeks (14 of 16 cats) compared to those treated by the transdermal route (14 of 25; $P = .027$). This difference was no longer significant by 4 weeks of treatment (9 of 11 for oral versus 14 of 21 for transdermal), possibly because of inadequate numbers evaluated by 4 weeks. Cats treated with oral methimazole had a higher incidence of gastrointestinal (GI) adverse effects (4 of 17 cats) compared to the cats treated with transdermal methimazole (1 of 27; $P = .04$), but no differences were found between groups in the incidence of neutropenia, hepatotoxicity, or facial excoriations. Although the overall efficacy of transdermal methimazole is not as high as that of oral methimazole at 2 weeks of treatment, it is associated with fewer GI adverse effects compared to the oral route.