Key Clinical Updates for General Practice from the 8th World Congress of Veterinary Dermatology and Recent Dermatology Publications

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1. Repeated oral dose tolerance in dogs treated concomitantly with cyclosporine and oclacitinib for three weeks. Panteri A, et al. *Vet Dermatol* 2016;27:22.

Purpose: To evaluate the oral tolerance of oclacitinib (Apoquel) and cyclosporine (Atopica) given concurrently for 3 weeks.

Methods: Two groups of 8 beagles were randomized in an open parallel experiment to receive oclacitinib alone (0.4–0.6 mg/kg twice daily for 14 days then once daily for 7 days) or in combination with cyclosporine (5 mg/kg once daily) for 3 weeks. They were examined every day and adverse events were recorded. Blood samples were collected during the acclimatization phase, weekly during treatment and at the end of the study for hematology, clinical chemistry and coagulation evaluation.

Results: There were no abnormal clinical observations following treatment with oclacitinib given alone or concomitantly with cyclosporine, with the exception of diarrhea in 2 dogs receiving both drugs. Three dogs from each group experienced transient inappetence; 3 dogs treated with oclacitinib had mild weight loss. Clinical pathology parameters remained within the reference range for beagle dogs at that facility.

Conclusions and Clinical Relevance: The concomitant administration of cyclosporine and oclacitinib for 3 weeks to beagles was well tolerated and was not associated with an increase in the number of adverse events or laboratory abnormalities beyond those associated with oclacitinib given alone. The use of this combination short-term may be helpful in some atopic dogs where a more rapid clinical response is desired over 2-3 weeks (without the use of corticosteroids) followed by long-term administration of cyclosporine alone. It should be noted that precautions in the Apoquel package insert include: *The use of APOQUEL has not been evaluated in combination with glucocorticoids, cyclosporine, or other systemic immunosuppressive agents. Dogs receiving APOQUEL should be monitored for the development of infections, including demodicosis, and neoplasia.* Similar precautionary wording is also found in the Atopica package insert.

2. A better characterization of clinical signs of canine atopic dermatitis in a specialty practice: a prospective study of 300 cases. Bensignor E, Merven F. *Vet Dermatol* 2016;27 (Suppl. 1):65.

Purpose: To prospectively evaluate cases of atopic dermatitis (AD) diagnosed in a specialty practice to better define clinical signs.

Methods: Dogs (n = 620) presented for a pruritic disease were included. Among these, 300 were finally diagnosed

as having AD using ICADA recommendations for diagnosis (briefly a pruritic dermatosis after exclusion of parasitic and microbial causes of pruritus).

Results: Two hundred and twenty five (225) cases were considered 'classical' forms of AD as defined by Favrot's criteria (group A). Seventy-five (25%) cases did not 'fit into the box' (group B). Unusual forms recognized were peri-umbilical and/or mammary pruritus (12/75), relapsing otitis externa without any other clinical sign (24/75), recurrent hot spot (8/75), anal pruritus (10/75), urticaria (3/75), 'head and neck dermatitis' (2/75), dorsolumbar pruritus (10/75) and alesional pruritus (6/75). No statistical differences were noted regarding breed, sex or age for the two groups. Allergen testing was performed in 175/225 cases in group A and 75/75 cases in group B, without statistically significant differences in the sensitization results.

Conclusions and Clinical Relevance: Results of this study confirm that the clinical picture of AD is complex and that different clinical forms of the disease are recognized in dogs.

3. Effectiveness of regionally-specific immunotherapy (RESPIT) for the management of atopic dermatitis in 103 dogs. Plant J, Neradilek M. *Vet Dermatol* 2016;27 (Suppl. 1):73.

Purpose: To evaluate the effectiveness of a subcutaneously administered uniform allergenic extract mixture used for at least 9 months in 103 dogs with atopic dermatitis.

Methods: In this retrospective study, dogs in the author's practice were diagnosed with atopic dermatitis based upon identifying characteristic clinical features and ruling out alternative diagnoses. Each received a uniform mixture of 20 allergenic extracts (18 pollen and 2 dust mite allergens) selected based on the aerobiology of the region (RESPIT Injectable). The initial subcutaneous dose of 0.1 mL (10,000 protein nitrogen units/mL) was increased weekly by 0.1 mL up to a weekly maintenance dose (0.5–1.0 mL). The records for dogs that a) began therapy during a 3 year period, b) continued therapy for > 270 days, and c) included certain baseline and follow-up entries were evaluated retrospectively. Response to therapy was classified as excellent, good, fair or poor based on changes in pruritus (evaluated by owners using visual analog score (VAS)), lesion severity, and concomitant medications administered between Day 0 (D0) and the first post-therapy examination.

Score	Response	Description
4	Excellent	Complete remission with no other medications
3	Good	Greater than 50% improvement in clinical signs and reduction in medications
2	Fair	Improvement, but concurrent medications could not be substantially decreased
1	Poor	No clinical change or a deterioration

Results: 103/286 dogs (36%) returned for an examination after 270 days while still receiving treatment, meeting the inclusion criteria. The mean duration of therapy evaluated was 424 days (median 365, range 273-1,735 days). The overall response was excellent in 19.4%, good in 37.9%, fair in 25.2% and poor in 17.5% of dogs. Baseline (D0) age, weight, gender, pruritus severity and lesion severity did not correlate with response classification. No adverse reactions were reported in the 103 evaluable dogs meeting the inclusion criteria. Seven of 286 dogs initially screened (2.4%) were suspected by pet owners to have experienced adverse reactions including 3 with increased pruritus, and 1 each with vomiting, blepharitis, restlessness or urticaria.

Conclusions and Clinical Relevance: In this retrospective non-controlled study, the combined good-excellent effectiveness rate of RESPIT Injectable (57%) was similar to rates previously reported for allergen-specific immunotherapy in atopic dogs.

4. Inaccuracy of a hair and saliva test for allergies in dogs. Coyner K, Schick A. *Vet Dermatol* 2016;27 (Suppl. 1):68.

Purpose: To determine if the Immune IQ test (Vet DVM, Boulder, CO) could reliably differentiate between samples from a normal dog, an allergic dog and fake dog fur and tap water.

Methods: Ten fur/saliva samples were submitted from a known atopic/food allergic dog and a normal, non-allergic dog, as well as five samples of realistic appearing "fake" fur from a stuffed toy animal and tap water. To ensure appropriate sample blinding for laboratory analysis, samples were submitted under different pseudonyms. Laboratory testing was performed for 128 food and environmental allergens. Specific testing procedures were described as proprietary and are not detailed by the company. Results are reported by the company as RED (things to avoid), YELLOW (caution) and GREEN (not a problem). Statistical analyses were performed to determine if the response distribution differed significantly between dogs as well as to determine test-retest reliability.

Results: The distribution of Immune IQ test results among allergic dog, non-allergic dog and fake fur samples were not distinguishable from those expected from random chance, after correcting for multiple comparisons. Test-retest reliability was poor to slight.

Conclusions and Clinical Relevance: The Immune IQ test results could not differentiate between an allergic dog, a non-allergic dog and fake animal fur, and should not be recommended as an alternative to hypoallergenic diet trials or intradermal or serologic allergy testing in companion animals.

5. A randomized, double-blinded crossover trial testing the benefit of two hydrolyzed poultry-based commercial diets for dogs with spontaneous pruritic chicken allergy. Bizikova P, Olivry T. *Vet Dermatol* 2016;27:144.

Purpose: To determine the clinical allergenicity of an extensively hydrolyzed poultry feather diet (Royal Canin Ultamino/Anallergenic Formula Dry)(RCU) and a partially hydrolyzed chicken liver diet (Hill's Prescription Diet z/d Canine Dry)(HZD) in dogs with chicken-induced cutaneous adverse food reactions (CAFR).

Methods: A prospective, randomized, double-blinded crossover trial was conducted in 10 dogs with chicken-induced CAFR that were positive on oral challenge to chicken meat. The 10 dogs were client-owned, had non-seasonal pruritus, were managed with a non-chicken-based diet, had a positive challenge to chicken meat and negative challenge to corn, and had a pruritus visual analog scale (PVAS) $\leq$ 2.5/10 at the start of the challenge. Each diet was fed for 14 days separated by a 14 day wash-out period. Owners rated pruritus daily using a PVAS. The challenge was ended if the PVAS exceeded 5/10.

Results: The median PVAS values before feeding RCU and HZD were 0.9 (range: 0–2.5) and 1.7 (range: 0–2.5), respectively, which were not significantly different. Taken together in all 10 dogs, the PVAS values were not significantly different after feeding RCU compared to those at baseline. The pruritus scores were significantly higher after dogs were fed HZD. None of the dogs fed RCU were removed from the study due to pruritus flares of $\geq$ 5/10. Four dogs (40%) fed HZD were withdrawn for this reason. Additionally, maximal and average PVAS values were significantly higher after feeding HZD than RCU.

Conclusions and Clinical Relevance: The more favorable response to RCU in this population of chicken allergic dogs may be due to lower allergenicity associated with a different degree of protein hydrolysis. HZD has residual

peptides of larger sizes. Three percent (3%) of poultry-based peptides in this formulation were reported to be >10 kDa. Conversely, an extensively hydrolyzed diet contains the majority of the protein in the form of individual amino acids. The results of this study suggest that if a patient is allergic to the native protein in a partially hydrolyzed diet, that the diet may be effective in only 60% of dogs it is used on for diagnostic purposes.

6. Diagnostic value of home-cooked and an extensively hydrolyzed diet (Anallergenic, Royal Canin, France) in the diagnosis of canine adverse food reaction: a randomized prospective multicenter study in 72 dogs. Cadiergues MC, et al. *Vet Dermatol* 2016;27 (Suppl. 1):21.

Purpose: To compare the diagnostic value of a home cooked diet (HCD) and an extensively hydrolyzed diet (Anallergenic/Ultamino)(RCU) for the diagnosis of canine adverse food reactions (CAFR).

Methods: Dogs with suspected CAFR were randomized to be fed either a balanced HCD or RCU. Inclusion required that 5 out of 8 Favrot diagnostic criteria for chronic canine atopic dermatitis be met, a CADESI-04 score of $\geq$ 45 and a pruritus score of $\geq$1 on a 0-4 scale. Dogs that had at least a 50% reduction in pruritus over the elimination trial went through a dietary challenge. CADESI-04 and pruritus scores were recorded at days 0, 56, 70 and 154.

Results: Thirty-five (35) dogs were fed the HCD and 34 the RCU. There were no significant differences between the two groups at any time point for CADESI-04 or pruritus. After 8 weeks, 18 (52.9%) of the dogs in the RCU group and 19 (54.3%) of the dogs fed the HCD had at least 50% reduction in pruritus and significant reduction in CADESI-04 scores. 12/18 (66.7%) dogs in the RCU and 12/19 dogs (63.2%) in the HCD group relapsed after the dietary challenge. Therefore, CAFR was diagnosed in 35.3% of the RCU dogs and 34.3% of the HCD dogs.

Conclusions and Clinical Relevance: The extensively hydrolyzed diet, (Ultamino, Royal Canin) may be just as reliable as a home-cooked diet to diagnostically screen dogs for CAFR. The results also suggest that approximately 1/3 of dogs with non-parasitic allergic dermatitis have a significant ($\geq$ 50%) food reaction component to their dermatosis. Additionally, this study also underscores the need for a dietary challenge to fully confirm that an initial dietary response is indeed due to CAFR.

7. Subcutaneous administration of cyclosporine for feline allergic skin disease – An open label clinical trial. Koch SN, et al. *Vet Dermatol* 2016;27 (Suppl. 1):74.

Purpose: To evaluate the efficacy and tolerability of subcutaneous administration of cyclosporine in 11 client-owned cats with year round non-flea and non-food allergic skin disease.

Methods: All cats showed variable degrees of pruritus and lesions with or without hair loss, including erythema, crusts and/or excoriations (3 cats), miliary dermatitis (3), symmetrical alopecia (2), and lesions of the eosinophilic granuloma complex (3). Cyclosporine 50 mg/mL injection (Sandimmune, Novartis, NJ) was administered subcutaneously by the owners for 60 days with initial doses of 2.5–5.0 mg/kg every 24–48 h. If significant clinical improvement was seen after 30 days of therapy, the investigators attempted to reduce the dosage to 2.5-5.0 mg/kg every 36-72h. Clinical response was assessed using FeDESI (feline dermatitis extent and severity index) and PVAS (pruritus visual analog scale) between days 0 and 60.

Results: Six (6) of the 11 cats completed the study. Five (5) cats were withdrawn due to the following: injection site reactions (2 cats), owner's inability to give injections (2), behavior changes and lack of response after 30 days (1). Dosages at day 60 ranged from 2.5 to 5.0 mg/kg q36-72h. FeDESI scores decreased significantly from day 0 (median: 45.5, range: 10–77) to day 60 (2.5, 0–18). Similarly, PVAS scores decreased significantly from day 0 (median: 6.5, range: 3–9) to day 60 (2, 1–3). The most common adverse reaction was a focal lesion and/or alopecia at the injection site with no systemic signs reported. Cats had baseline and day 60 chemistry profiles, complete blood cell counts, urinalysis and urine cultures. There were no significant abnormalities reported for

any of the cats at any time point.

Conclusions and Clinical Relevance: Subcutaneous cyclosporine appears to be an efficacious and safe therapy for feline allergic skin diseases and may be a good treatment option for cats that cannot be treated orally.

8. Head and neck feline dermatitis: response to oclacitinib treatment. Pandolfi P, Beccati M. *Vet Dermatol* 2016;27 (Suppl. 1):58.

Purpose: To determine efficacy after oral administration of oclacitinib (Apoquel) in allergic cats where the major sign is head and neck dermatitis (HND) and where other therapies have failed.

Methods: Fifteen (15) cats had undergone previous treatment with systemic corticosteroids (11) or cyclosporine (4) at an adequate dosage. All cats received oclacitinib at 2.7 mg/cat twice daily (0.5–0.8 mg/kg). To facilitate administration of the drug, half of a 5.4 mg pill was administrated twice daily for 2 weeks, then cats received the same dosage once a day for an additional 14 days. Clinical lesions were evaluated with SCORFAD (SCORING Feline Allergic Dermatitis) system, which estimates the severity and extent of four lesions (excoriations, eosinophilic plaque, miliary dermatitis, self-induced alopecia) and the number of body regions involved. Owners monitored all cats weekly for pruritus using a Visual Analog Scale (VAS) with descriptors.

Results: There was a rapid decrease of pruritus in 10/15 cats; 3/15 dropped out, mainly for difficulty in administrating the pills; 2/15 showed no improvement in pruritus. SCORFAD and VAS were improved in 10/15 cats (66.6%).

Conclusions and Clinical Relevance: Oclacitinib treatment may provide relief for cats with HND. However, the drug is not approved for use in cats and long-term safety and efficacy studies have not been reported.

9. Evaluation of cytology collection techniques and prevalence of Malassezia yeast and bacteria in claw folds of normal and allergic dogs. Lo KL, Rosenkrantz WS. *Vet Dermatol* 2016;27:279.

Purpose: To compare three different sampling methods for claw fold cytology and to evaluate the numbers of bacteria, *Malassezia* yeast and inflammatory cells.

Methods: Sixty (60) client-owned dogs: a) normal, b) allergic dogs with no clinical signs of claw disease, c) allergic dogs with clinical paronychia. Claw fold samples were taken with a toothpick, acetate tape preparation and direct impression smear. Slides were evaluated by two investigators for inflammatory cells, nuclear streaming, debris, corneocytes, yeast, intracellular (IC) cocci, extracellular (EC) cocci, IC rods and EC rods. For each parameter, data were compared between groups and between methods. Inter-reader agreements were also calculated.

Results: Group c) allergic dogs with clinical paronychia had significantly higher numbers of EC cocci (36.62 over 9 fields) and corneocytes (30.55) than groups a) (3.5 and 24.33, respectively) or b) (0.82 and 24.74, respectively). Yeast counts were higher in allergic dogs (24.99 in group c) and 11.9 in group b)) but not significantly different than for normal dogs (6.83). There were significantly higher numbers of *Malassezia* organisms (27.13) and EC cocci (22.62) retrieved from samples collected with a toothpick compared to other methods. Tape preparations were associated with significantly more debris (8.66) and corneocytes (35.03) and impression smears with significantly more nuclear streaming (0.54).

Conclusions and Clinical Relevance: Based on these findings, the authors state that sample collection using a toothpick optimizes the value of cytological results when sampling allergic dogs with clinical paronychia. Additionally, yeast organisms are seen as part of the flora in the claw folds of normal dogs and allergic dogs with no clinical claw disease. These findings should be taken into account when a decision is made to treat with

systemic and/or topical antifungal therapy.

10. Evaluation of the squeeze tape impression for the diagnosis of canine demodicosis. Vogelnest L, Garibotto V. *Vet Dermatol* 2016;27 (Suppl. 1):38.

Purpose: To determine the sensitivity and specificity of this test for the diagnosis of demodicosis due to *Demodex canis* and to characterize this test.

Methods: Sixteen (16) affected and 30 control (15 normal skin, 15 with skin disease) dogs were evaluated. Squeeze tape impressions were collected from four sites, including one lesional site in affected dogs. A 5 cm strip of clear, 24 mm wide, adhesive tape was placed onto skin, and tape and underlying skin squeezed for 2–3 s, and repeated 2–4 times. Tapes were gently stretched and placed onto a glass slide. Deep scrapings were collected from control dogs with skin lesions (15 dogs).

Results: Tape samples revealed no mites in all control dogs (120 samples) and mites at lesional sites in all affected dogs. Deep scrapings were negative in control dogs with skin lesions and positive in 14/16 (87.5%) affected dogs. Two affected dogs with mites on tape samples had no mites on deep scrapings. The sensitivity and specificity of the squeeze tape impression were both 100%, with 90% sensitivity for the deep scraping.

Conclusions and Clinical Relevance: The squeeze tape impression has excellent sensitivity and specificity for the diagnosis of canine demodicosis associated with *D. canis* and is less invasive and more readily performed at multiple body sites in comparison to the deep skin scraping.

11. A blinded, randomized, placebo-controlled trial investigating three dose levels of lokivetmab (ZTS-00103289), a caninized anti-canine IL-31 monoclonal antibody, for the reduction of pruritus and associated skin lesions in dogs with atopic dermatitis. Michels GM, et al. *Vet Dermatol* 2016;27 (Suppl. 1):55.

Purpose: To identify a dose of lokivetmab for maximum relief of clinical signs of atopic dermatitis over 4–6 weeks in a randomized, double-blind, placebo-controlled trial.

Methods: Fifteen specialty clinics enrolled client owned dogs (n = 211) with chronic AD. Dogs were randomized to treatment with lokivetmab (0.125, 0.5 or 2.0 mg/kg) or placebo administered subcutaneously once on day 0. Dog owners assessed visual analog scale scores of pruritus and clinicians assessed Canine AD Extent and Severity Index (CADESI-03) scores periodically for 56 days.

Results: Treatment with lokivetmab (2 mg/kg) resulted in a significantly greater percentage reduction from baseline in pruritus (days 1–49) and CADESI scores (days 7–56) compared to placebo; significant differences were achieved in lower dose groups but at later time points and for shorter duration for pruritus (0.5 mg/kg, days 2–35; 0.125 mg/kg, days 7–21) and CADESI scores (0.5 mg/kg, 0.125 mg/kg; day 14). Treatment with lokivetmab (2 mg/kg) resulted in significantly lower mean pruritus and CADESI scores at day 28 compared to placebo (32.6 versus 58.0) and (73.7 versus 121.9), respectively; a significantly greater percentage of dogs achieved $\geq$ 50% improvement in pruritus and CADESI scores at day 28 compared to placebo (57% versus 14%) and (46% versus 9%), respectively.

Conclusions and Clinical Relevance: Lokivetmab provided dose-dependent improvement in owner assessed pruritus and clinician assessed CADESI-03 scores within as early as 1 day through $\leq$ 6 weeks and, in some dogs, $\leq$ 2 months following a single dose. Results of another paper presented at this congress revealed no differences in adverse events or clinical pathology values between treated and placebo groups after 2 monthly doses of this immunotherapy in 162 client-owned dogs.

12. Quality assessment of compounded fluconazole capsules and oral suspensions in the United States. Laporte C, et al. *Vet Dermatol* 2016;27 (Suppl. 1):35.

Purpose: To evaluate the pharmaceutical characteristics (strength, accuracy, precision), physical properties and bacterial contamination of fluconazole compounded products (FCPs) (capsules and oral suspensions) from US compounding pharmacies.

Methods: FCPs (30 and 240 mg capsules; 30 and 100 mg/mL oral suspensions) were ordered from four pharmacies at three time points, 7 or 10 days apart. Generic FCZ (50 and 200 mg tablets; 10 and 40 mg/mL oral suspensions) was used as reference. Samples were evaluated upon receipt; suspensions were additionally evaluated at 3 and 6 months. Physical properties, bacterial contamination, accuracy (percentage predicted), and precision (reproducibility of results) were assessed for all CPs. High performance liquid chromatography was used to quantify FCZ.

Results: Aerobic bacterial cultures were negative. Physical properties differed between and within pharmacies. Capsules (30 and 240 mg) had acceptable accuracy (median 95.9%, range 87.2-135.2%) and precision (mean 7.4 +/- 5.9%). Suspensions (30 and 100 mg/mL) had poor accuracy (median 74.4%, range 53.9-95.2%) and precision (mean 14.9 +/- 6.9%). Capsules were statistically more accurate and precise than suspensions.

Conclusions and Clinical Relevance: Based on these findings, FCPs should be prescribed with caution. Further studies evaluating FCPs bioavailability or clinical efficacy are indicated but should be accompanied by data demonstrating the quality of the CP studied.

13. Triggers, risk factors and clinico-pathological features of urticaria, angioedema and anaphylaxis in dogs – a prospective observational study of 24 cases. Rostaher A, et al. *Vet Dermatol* 2016;27 (Suppl. 1):9.

Purpose: To improve knowledge of the triggers, risk factors and clinico-pathological features of urticaria, angioedema and anaphylaxis in dogs.

Methods: Dogs submitted to the Clinic for Small Animal Internal Medicine, Vetsuisse Faculty, Zurich with signs of angioedema, urticaria or anaphylaxis were enrolled between 2014 and 2015. The immediate workup consisted of clinical examination and routine laboratory tests. The causes were determined according to the dogs' medical history and additional tests (Western blotting, IgE serology, intradermal testing, dermatographism, autologous serum and ice cube skin test), if appropriate. A causality algorithm for urticarial and anaphylaxis (ALUA) with a score range from 0 to 22 was designed, to objectively determine the probability of the identified triggers.

Results: Twenty-four cases were detected. The following clinical features were encountered: wheals (67%), angioedema (63%), pruritus (42%), vomiting (42%), atopic dermatitis (40%), diarrhea (25%) and collapse (12%). The predominant blood abnormalities were leukocytosis, and elevated lipase, creatinine kinase and alanine aminotransferase values. Venom, food and drug allergens were considered very likely (ALUA > 10) causes in six (29%), four (17%) and three (13%) cases, respectively. Venom or food allergens was considered likely (5 > ALUA < 10) causes in three (13%) cases. The cause was possible (ALUA < 5) in seven (29%) cases and consisted of reactions to food and venom allergens in six and one case, respectively.

Conclusions and Clinical Relevance: This is the first prospective study describing the triggering factors and clinico-pathological features of dogs with urticaria, angioedema and anaphylaxis in veterinary medicine. Food, insect venoms and drugs were the leading triggers, resembling what is described in human medicine.

14. Frequency of urinary tract infections in feline patients with dermatologic disease receiving long-term glucocorticoids and cyclosporine. Lockwood S, et al. *Vet Dermatol* 2016;27 (Suppl. 1):33.

Purpose: To investigate the frequency of UTIs in cats receiving long-term glucocorticoid and/or cyclosporine therapy for the treatment of dermatological disease compared to normal cats.

Methods: In this prospective study, 33 cats being treated with oral glucocorticoids and/or cyclosporine for more than 3 months or at least 2 injections of long-acting glucocorticoids within the preceding 6 months were included. Thirty-four (34) normal cats without abnormalities on physical examination and not receiving any medication were used as a control group. Ten (10) cats received glucocorticoids only; the mean dose was 0.71 mg/kg/day and the mean therapy duration was 10.4 months. Four (4) cats received cyclosporine only; the mean dose was 5.7 mg/kg/day and the mean therapy duration was 11.8 months. Nineteen (19) cats received a combination of both drugs, the mean dose for glucocorticoids was 0.41 mg/kg/day and the mean treatment duration was 19 months. The mean dose for cyclosporine was 5.6 mg/kg/day and the mean treatment duration was 15.4 months. All cats had a complete blood count, biochemistry profile, urinalysis (collected via cystocentesis) and urine culture performed.

Results: In the glucocorticoid/cyclosporine group, 0/33 cats had a positive urine culture. In the control group, 1/34 cats had a positive urine culture. For urinalysis, red blood cells were higher in the study group. For CBC, red blood cells, hematocrit, hemoglobin and lymphocytes were higher in the control group, and eosinophils and neutrophils were higher in the study group. For chemistry, the albumin/globulin was higher in the control group, and the globulins, glucose, and GGT were higher in the study group. The only values that were still within normal limits, yet statistically significant, were the albumin/globulin ratio and the GGT, all other abnormalities had values outside the normal reference range.

Conclusions and Clinical Relevance: There was no evidence in this study to suggest that receiving long-term glucocorticoids and/or cyclosporine was positively associated with UTIs in cats. The CBC and chemistry abnormalities were attributed to medications and/or diseases. Clinical and laboratory monitoring is warranted in cats on long-term immunosuppressive therapy.