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P-74

Evaluation of the *in vivo* effects of Tris-EDTA and chlorhexidine digluconate 0.15% solution in chronic bacterial otitis externa: 11 cases

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The objectives of this study were to evaluate *in vivo* tolerance, and antimicrobial and clinical activities of a topical otic preparation containing EDTA tromethamine (Tris) and chlorhexidine digluconate 0.15% solution (Otodine®) in dogs with chronic bacterial otitis externa. Eleven dogs were included. The affected ears were filled with the solution once daily during a 2-week period. Dogs were evaluated on days 0, 14 and 28. Three clinical parameters (exudate, erythema, pain) and three cytologic parameters (*Malassezia*, cocci, rods) were scored (0–4 scale) by otoscopic and cytological examinations of otic exudate. Bacterial cultures were performed at each time point. If there were bacteria on cytological examination on day 14, the dogs were treated with the original product, with the addition of enrofloxacin (5%) applied 10 min after the original product, for a further 2 weeks. All 11 cases yielded isolates of resistant gram-negative bacteria; gram-positive bacteria were also isolated from six of 11 dogs. On day 14, six of 11 dogs were negative on culture examination; on day 28, 10 of 11 were negative and only one case had a positive culture. On day 14, clinical and microbial scores (cytology) were reduced by 54.6 and 71.1%, respectively, and by 85.7 and 94% on day 28. All cases reported good tolerance of the treatment. The results show that this ear solution was helpful in the management of chronic bacterial otitis externa in dogs and was well tolerated. There seems to be a synergistic effect of the combination of Tris-EDTA/chlorhexidine digluconate 0.15% solution, and an antimicrobial agent (enrofloxacin) against resistant gram-positive and gram-negative bacteria.
Funding: Self-funded.

P-75

Development of an *in vitro* test to evaluate cerumen-dissolving properties of veterinary ear cleansing solutions

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This study aimed to evaluate objectively the cleansing properties of four veterinary ear care solutions. An *in vitro* test was developed, based on dissolution of synthetic dog cerumen in test tubes. Artificial cerumen was produced, based on literature data, with a melting point and consistency very close to natural canine cerumen. One millilitre of test solution was poured into haemolysis tubes containing 100 mg of synthetic cerumen. Contact time was 10 min at 37°C. Moderate agitation was then applied for 10 s to mimic *in vivo* application. Solutions were vacuum-filtered on filter paper and cerumen remaining in the tube or on the paper was weighed after drying. The experiment was repeated five times for each formulation. One-way ANOVA was performed to detect differences between formulations. In order to validate the test, measurement of the solution wetting power was performed in parallel using the reference ISO 8022 method. Mean quantities of cerumen dissolved were 4.7, 6.5, 7.7, 14.7 and 23.2 mg for Cerulane®, Otolane®, distilled water (control), Otoclean® and Physiological Ear Cleanser®, respectively. The latter was the only solution that demonstrated greater ability for cerumen dissolution as compared to water ($P < 0.05$). Macroscopically, Physiological Ear Cleanser® solution became white and opaque in test tubes, reflecting the formation of an emulsion. Other solutions remained clear or only partially turbid. This cerumen dissolution test proved a practical and valuable model to assess the cleansing power of ear solutions before *in vivo* trials.
Funding: Virbac SA.

P-76

The effect of omega-3 fatty acid supplementation on cutaneous and plasma fatty acid concentrations in dogs with atopic dermatitis

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The purpose of this study was to evaluate the influence of a fatty acid supplement on the concentration of essential fatty acids in the skin and plasma of dogs with atopic dermatitis. Twenty-nine dogs with nonseasonal atopic dermatitis were supplemented with 1000 mg flax oil capsules, 3V Caps containing 180 mg of eicosapentaenoic acid (EPA) and 120 mg of docosahexaenoic acid (DHA)/capsule, or mineral oil as placebo at 1 capsule/5 kg once daily for 10 weeks in a randomized, double-blinded trial. Dogs were evaluated by owners and clinicians before and after supplementation using a clinical scoring system. Blood samples and skin biopsies from the lateral chest were taken before and after 10 weeks of supplementation. Overall, daily intake of omega-3 and -6 fatty acids was calculated for each patient before and after supplementation. Linoleic acid (LA), α-linolenic acid (α-LA), arachidonic acid (AA), EPA and DHA were determined in plasma and skin using gas chromatography. α-Linolenic acid and EPA were significantly increased in plasma ($P = 0.0165$ and 0.0042, respectively), but not in skin after supplementation with 3V Caps. The concentration of α-LA was increased after flax oil supplementation ($P = 0.0226$). Plasma AA decreased in dogs supplemented with 3V Caps ($P = 0.0029$). Supplements changed the plasma and skin fatty acid concentrations significantly. A significant correlation between clinical outcome and cutaneous or plasma concentration was not present for any of the fatty acids. Based on these results, supplementation with fatty acids changes the plasma, but not skin concentrations of fatty acids in dogs with atopic dermatitis.
Funding: Shipley Foundation.

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