Oral presentations

Effect of the ingredient A97614A1 on the adhesion and biofilm formation of *Staphylococcus pseudintermedius* in a model of reconstructed canine epidermis

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OBJECTIVES

Dogs with atopic dermatitis present a loss of diversity of their skin microbiota with relative increases in *Staphylococcus* spp. abundances during flares. There is a strong correlation between this dysbiosis, inflammation and skin barrier defect. *Staphylococcus pseudintermedius* is also the most frequent pathogen isolated from skin and ear infections in dogs. The objective of this study was to

evaluate the efficacy of the ingredient coded A97614A1 on the adhesion and biofilm formation of *Staphylococcus pseudintermedius* in a model of Reconstructed Canine Epidermis (RCE).

METHODS

Primary keratinocytes extracted from skin samples of two dogs were cultured in a specific medium for 12 days in order to develop RCEs. On day 12, RCEs were either treated topically with A97614A1 during 24 hours or not treated (controls). On day 13, 50 µL of a 106 CFU/mL suspension of *Staphylococcus pseudintermedius* isolated from a dog with pyoderma were topically applied on RCEs. Twenty-four hours later (day 14), RCEs were observed using scanning electron microscopy to assess the adhesion and biofilm formation of *Staphylococcus pseudintermedius*.

RESULTS

RCEs treated with A97614A1 presented much less *Staphylococcus pseudintermedius* than control RCEs. The ingredient A97614A1 therefore limited the adhesion and biofilm formation of *Staphylococcus pseudintermedius* at the surface of the RCEs.

STATEMENT (CONCLUSIONS)

These results support the potential interest of incorporating this ingredient into topical products intended for dogs presenting an alteration of their skin microbiota, including atopic dogs.

Efficacy of the ingredient A97614A1 in a model of reconstructed human epidermis stressed by cytokines

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OBJECTIVES

In dogs and cats as in humans, dermatological disorders are associated with impaired skin barrier, comprising a defective mechanical barrier, a dysregulation of the

immune response and an alteration of the skin microbiota. The objective of this study was to evaluate the efficacy of a new ingredient coded A97614A1 on the mechanical and immunological skin barrier, using an *in-vitro* model of Reconstructed Human Epidermis (RHE) stressed by cytokines to induce a skin barrier defect.

METHODS

RHE stressed by cytokines were treated with A97614A1 and compared to non-treated stressed RHE and to normal (not stressed and non-treated) RHE. The evaluation of the effect of A97614A1 on the mechanical skin barrier (including hydration) was assessed through the analysis of RHE morphology, outside-inside permeability (Lucifer yellow test), transepidermal water loss (TEWL), Natural Moisturising Factors (NMFs) and ceramides. The analysis of the pro-inflammatory cytokines IL-8 and TSLP (markers of the immune response) served as criteria to evaluate the immunological skin barrier.

RESULTS

Compared to normal RHE, stressed RHE present a disorganisation of the structure (dissociation of cells, spongiosis, fewer and smaller keratohyaline granules), increased permeability and TEWL, and decreased amount of NMFs

and ceramides; the IL-8 and TSLP release is increased. Treatment with A97614A1 allowed stressed RHE to recover normal morphology, impermeability, TEWL, IL-8 and TSLP amounts, and close to normal amounts of NMFs and ceramides.

STATEMENT (CONCLUSIONS)

The ingredient A97614A1 was shown to have beneficial effects on the mechanical and immunological skin barrier. These results support the potential interest of incorporating it into topical products.

Two case reports of novel cutaneous mycoses in cats in the UK using molecular identification for rapid and accurate diagnosis

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OBJECTIVES

Phaeohyphomycosis and sporotrichosis are saprophytic mycoses affecting humans and animals. Traumatic inoculation results in cutaneous and subcutaneous lesions that can be locally invasive. Traditional culture based methods can be slow and may not sufficiently classify the fungi. Molecular testing however, can achieve a fast definitive identification.

METHODS

Two cats (cat 1–15-year-old male neutered domestic short hair; cat 2–11-year-old female neutered domestic long hair) developed focal suppurative nodular lesions on the dorsal nose. Both cats had been previously diagnosed with diabetes mellitus and were on insulin therapy. There was no response to broad spectrum antibiotics selected following antimicrobial susceptibility tests. Fungal elements were seen on cytology, although initial culture was negative in cat 2. Subsequent isolates were obtained after overnight incubation of fresh discharge on Sabouraud dextrose agar with chloramphenicol. These were submitted for PCR and sequencing of the ribosomal internal transcribed spacers (ITS) with the primers ITS-F and ITS-R.

RESULTS

PCR and sequencing confirmed phaeohyphomycosis with *Exophiala dermatitidis* (cat 1) and sporotrichosis with *Sporothrix pallida* complex (cat 2). Further sequencing of calmodulin and beta-tubulin partial gene sequences confirmed *Sporothrix humicola*.

STATEMENT (CONCLUSIONS)

These are the first reports of *Exophiala dermatitidis* and *Sporothrix humicola* in cats in the UK. The use of molecular methods provided a rapid and definite identification of the fungi. Clinicians and pathologists need to be aware of the emerging use of molecular techniques to achieve rapid and accurate identification of rare fungal microorganisms. This will help reduce unnecessary antibiotic use.

Antimicrobial susceptibility of bacterial isolates from canine wounds in a referral population

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OBJECTIVES

To report the prevalence and antimicrobial susceptibility of bacteria isolated from canine wounds in a referral population.

METHODS

Data was collected from clinical records of dogs with wounds cultured between 01/01/2008 and 01/01/2018. Cases with incomplete clinical information or results were excluded. 1 isolate was included where the same bacteria were isolated from multiple samples in a dog.

RESULTS

392 cases (499 samples) were included. 83.5% of cultures were positive; 54.7% isolated a single organism and 28.8% two or more.