Therapeutic Approach to Feline Allergic Skin Diseases in Veterinary Dermatology

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One-Two Punch?? Convenia and DepoMedrol

Question?
Cats are not as overt in their display of pruritus as compared to dogs

- Obsessive grooming
  - "Closet lickers"
  - Rub, lick, scoot, chew, roll, or shake

- Symmetrical alopecia
  - May be primary sign
  - No other signs
  - Psychogenic or endocrine

Cats respond differently to medications

- Prednisone to prednisolone conversion
  - Graham-Mize & Rosser 2004 WCVD
  - Prednisone vs. same dose prednisolone
  - [Tmax] 10X times greater for cats

- Cats develop steroid tachyphylaxis faster than dogs
  - Become refractory to steroids
  - Switch to dexamethasone or triamcinolone

- Cats need 2X dose than dogs
  - e.g. 2 mg/kg prednisolone = anti-inflammatory
  - Tolerated better – litter box

Corticosteroids administration
- Often difficult to pill
- Injectable, lick-off paste, transdermal

Is The Cat Pruritic?

- Usually associated with pruritus
  - endocrine alopecia is very rare in the cat

- Look for barbering of hairs
  - mainly dorsal including tail
  - ventral abdomen and thighs

Psychogenic/behavioural problems are diagnosed by exclusion

- Many long standing pruritic problems will develop a behavioural component
Psychogenic alopecia – does it exist?

- Study: 21 cats diagnosed with psychogenic alopecia
  - 16 cats: associated medical condition
  - Adverse food reaction, atopy, flea allergy dermatitis, parasitic dermatosis, bacterial dermatitis, hyperthyroidism, hypersensitivity of unknown cause
  - 3 Cats
    - Medical condition AND compulsive component

Waisglass, S et al. Underlying medical conditions in cats with presumptive psychogenic alopecia. JAVMA, 2006;228(11) 1705-1709

How over diagnosed is it?

2/21 cats: psychogenic alopecia!

Oh my... maybe cats aren't crazy after all.

History

- Age of onset
  - < 6 months of age
  - parasite hypersensitivity, dermatophytes
  - 6 months and 6 years of age
  - Any cause for pruritus
  - Ectoparasitism, atopy, and food allergy
  - > 8 years of age
    - CAFR, CTCL, hyperthyroidism
- Littermates or owners affected
- Housing
- Shelter, rescue, multiple-cat household
- Recently introduced pet
- Travel; in and/or outdoors
- Contagious: Notoedres, Otodectes, Cheyletiella, Sears, viral or dermatophytes.
+ APPROACH TO SEASONAL PRURITUS IN CATS

- Flea comb
- Fecal exam
- Ingested parasites (e.g. Demodex gatoi)
- Hair
- Ectoparasiticidal therapy
  - Revolution or Advantage-multi q7-28 days
  - AND Comfortis 30mg/kg
- Steroid trial
  - Catapy (100% response)
  - FAD (100% response if w/parasiticidals)
  - CAFR (50% response)
  - Psychogenic (0% response)
- +/- Dietary trial
  - Help to minimize allergen load
- +/- IDT and/or Serologic allergy test
  - Seasonal? Owners do not want to use medications
  - Avoidance and/or immunotherapy

Comfortis® (Elanco AH)

- Spinosad – neonicotinoid
- Excitatory paralysis
- Once-a-month for DOGS
- Beef-flavoured
  - Pork/soy; Watch in CAFR
- 14 weeks or older
- Distributed in bloodstream
  - OK to bathe frequently, contact with children
  - Does require flea bite ﬂ salivary antigen

+ Comfortis® (Elanco AH)

- Cats @30mg/kg (with Revolution® topically)
  - Ashley T Dermatology Drug Choices for Cats. WVC 2009
- Tick control for 10 days
  - VIN Boards (Oxytocin wash) from the trenches April 7 2009
- Lice (sucking vs biting)
- Maggots (like Capstar®)
**APPROACH TO NON-SEASONAL PRURITIC CAT**
- Same as seasonal pruritus, but...
- Add weekly LED to rule-out D. gatoi
- Rule out dermatophytosis
- Wood's lamp/tape prep/DTM
- Diagnostic testing and treating in-contact pets
- Definitely do a veterinary brand dietary trial
- Environmental modifications AND....
- Allergy testing if interested in ASIT
- OR long-term symptomatic Rx

**ID Primary Etiology**
- Avoid the Rx rollercoaster
- Help to minimize therapy
- Minimize owner frustration
- Avoid CVO investigations

**Multi-Modal Therapy**
- Anti-Neuronal therapy
- Allergic IgE's/thrombocytopenia
- Steroid resistant
- Gibberelmins (Novo & Zylkene)
- Anti-histamines
- Central inhibitory drugs
- Topical therapy
- Traditional home remedy
Allergen avoidance

- **DIETARY TRIAL** (seasonal/non-seasonal)
- Outside when vacuuming
- Inside when mowing the lawn
- Keep out of basements, garages, laundry
- Consider HEPA filters
- Mattress/pillow covers
- Minimize carpet in house/Acarosan
- Rake leaves
- Block off compost, ponds

- [www.AAAAI.org](http://www.AAAAI.org)

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Barrier Repair

- Maintain epidermal barrier
- Prevent secondary infection
- Easier than bathing
- Wide safety margins
- Apply between shoulder blades to prevent grooming

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Poly-Unsaturated Fatty Acids

- **Synergistic**
- **Omega 6 (scaling)**
  - Evening Primrose
  - Safflower oil
  - Epidermal barrier
  - Ceramide layer
- **Omega 3 (inflamm' n)**
  - Marine Fish Oil
  - Flax Seed Oil
  - AA substrate
  - Non-inflammatory
  - LFS, PG1 & 3
  - Cost, Diarrhea

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Use of antihistamines

- Non-selective H1 antagonist
- Antimuscarinic/sedative
- Variable responses
- Multimodal
- 1st vs 2nd generation
- Sedating vs. non-sedating
- Top 3 in cats
  - Cetirizine (Reactine®)
  - Chlorpheniramine (Chlor-Tripolon®)
  - Amitriptyline (Elavil®)

Cetirizine Pharmacology

- Onset of action = 1-3 hr. following oral administration
- Duration of action = 12-24 hr
- Peak concentrations = 10 hr
- Give continuously for a minimum of 2 weeks before evaluating
- Cetirizine is excreted largely unchanged in urine
- Drug-drug interactions may occur with inhibition or induction of the cytochrome P450 system

Mechanism of Action

- Decrease late-phase allergen-induced reactions
- Decrease influx of eosinophils in response to allergens
- Decreased cytokine release
- Decreased mediator release
- Decreased allergic inflammation, itching, sneezing, runny nose, and wheezing
- Decreased antigen presentation, expression of pro-inflammatory cytokines, chemokines, and pro-inflammatory chemokines

An open clinical trial on the efficacy of cetirizine HCl in the management of allergic pruritus in cats


- 5 mg/cat, PO q24h for 14 days
- N= 32 cats with allergic skin disease
- Pruritus reduced in 41% (13/32) of the cats.
- Antipruritic effect was repeatable and sustainable.
- No adverse side effects were reported.

Study concerns:
- Not RDBPC ???
- Undetermined allergies ???
- Chronicity of allergies and effect ???

Combination antihistamines

- Choose from different chemical groups
- Classification based on:

<table>
<thead>
<tr>
<th>Chemical Grouping</th>
<th>Generations</th>
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<tbody>
<tr>
<td>Ethanolamines</td>
<td>1st generation = sedating</td>
</tr>
<tr>
<td>Alkylamines</td>
<td>2nd generation = non-sedating</td>
</tr>
<tr>
<td>Piperazines</td>
<td>3rd generation (derivatives of 2nd gen and this nomenclature should be reserved for next true class of antihistamines to be developed)</td>
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<tr>
<td>Piperidines</td>
<td></td>
</tr>
<tr>
<td>Phenothiazines</td>
<td></td>
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<tr>
<td>Ethylenediamines</td>
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<td>TCA</td>
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Cyclosporine (Atopica®)

- Targets the immune cells
- Calcineurin Inhibitor
  - Inhibits Nuclear factor activated T-cells
  - ↓ transcription of IL-2
  - ↓ cell activation
- Also inhibits:
  - Eosinophil recruitment/activation
  - Keratinocyte cytokine production
  - Langerhans' cell function
  - Degranulation of mast cells
  - Inhibits neurogenic itch
Atopica®/Neoral® (cyclosporine)

- Rule-out other etiologies
- How to institute
  - 5-7.5mg/kg/day for 30 days
  - +/- With steroids to start 7-14d
  - Multi-modal therapy
  - Client expectations
- Recheck in 4 weeks
  - 50% Decrease to 5-7.5 mg/kg q48h.
- Recheck in 8 weeks
  - 25% Decrease to 5-7.5 mg/kg q72h
- If oral difficult, consider injectable
  - 2.5-5mg/kg Sandimmune

+ WHAT ABOUT CATS?

- Bioavailability PO Cats >> Dogs;
- Lower clearance; slightly longer elimination T½
- RDBPC cyclosporine = prednisolone
  - Most common side effects = V/D
- Catopy, Persian Facial Dermatosis, eosinophilic granuloma, plasmacytic stomatitis, indolent ulcer
  (Vercelli et al., 2006)

+ USE CAUTION IN OUTDOOR CATS

FIV-INFECTED CATS
- No clinical expression of FIV was seen in 2 FIV+ cats
- Treatment of FIV-infected cats is controversial

TOXOPLASMOSIS
- Susceptibility of cats to acute acquired infection with T. gondii or reappearance of T. gondii in immunosuppressed cats (LAST, 2004)
- IF treating outdoor cat – IgG(+)IgM(-) is best status

Before using cyclosporin in cats test for FIV, FeLV, Toxoplasma gondii
+/- treat w/clindamycin 12.5mg/kg BID for 28 days
**Allergen-Specific Immunotherapy**

- **↑ prod' n of inhibitory co-stimulatory molecules**
- Inhibits Th2 activation ➔ IL-5 release
- Promotes switch Th2 ➔ Th1 activation
  - Th1 causes less allergic inflammation
- Activates Treg cells
  - ↑ release IL-10 inhibitory cytokine
- Promote immunoglobulin isotype switching
  - IgE (allergic) ➔ IgG (blocking)

**Immunotherapy**

- SQ q48hrs 30d
- NOT “light switch”
- Ancillary meds during induction
  - Atopica® ➔ Treg
  - C. Brandt et al, Allergy 2009
  - Glucocorticoids
- Longterm
  - 0.5-1.0cc every 7-28 days
  - 0.25-1.0 cc every 7 days
- Different response rates based on lesions
  - 100% linear granulomas
  - 95% indolent ulcers
  - 53% self-induced alopecia (53%)

**RUSH Immunotherapy**

- Injectable ASIT
- Premedicated and IV catheter placed
  - 1.5mg triamcinolone, PO, 24 and 2 hrs prior to injections
  - 10mg hydroxyzine, PO, 24, 12 and 2 hrs prior to first injection
  - Subcutaneous injections at increasing concentrations
  - Every 30 minutes for 5 hrs to maintenance dose
The Fire Retardant
- Dexamethasone 0.05-0.1mg/kg
- Temaril-P ® /Vanectyl-P® (Pfizer)
  2mg prednisolone; 1mg timoprazine
- Synergism → dec pred dose
  1 tablet/cat OFF LABEL
- Genesis ® (Virbac)
  0.015% triamcinolone spray
- Chiron compounding pharmacy
- Candace Sousa max yearly dose:
  - Endogenous steroid prod’ x prednisone potency
  - BW (kg) x 30 = MAX mg pred per year
  - VIN.com
- Use as a rescue medication
- Daily in 3-7 day bursts

Steroids Are Good BUT…
- Infections
  - bladder infections, skin infections, septicemia, respiratory infections
  - generalized demodecosis
- Alopecia, thin skin, skin fragility (cats)
- Calcinosis cutis, atrophic remodeling of scars
- Milia-like comedones, follicular cysts
- Musculoskeletal atrophy
- Hyperlipidemia, steroid hepatopathy,
  Adrenal suppression/atrophy
  DM, ESS, increased PTH levels
- Behavioral changes, PU/PD, polyphagia, panting
Addressing concurrent factors

+ Malassezia Dermatitis

Malassezia Dermatitis

- Diagnosis
  - Coat quality
  - Seborrhea
  - Pruritus
  - Systemic disease
  - FIV/FELV
  - Cytology
  - +/- Culture
Feline Malassezia Dermatitis

- **Topical Treatment**
  - Miconazole, Ketoconazole
  - Chlorhexidine
  - Malasept wipes, Malaseb shampoo
  - Dermazol, Ketochlor shampoo
  - Chlorhexiderm, Hexadene
  - Otomax (clotrimazole)
  - Imaverol® (enilconazole) + E-collar

- **Systemic Treatment**
  - Not ketoconazole
  - Triazoles are OK - Fluconazole, Itraconazole 5-10mg/kg/day with fat
  - Terbinafine (Lamisil®) 30mg/kg/day
  - Beware of the underlying "Debilitating" disease

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One Last Word About Cats...

- Cats only eat what THEY want.
- Cats are in touch with the inner barbarian.
- Cats don't like pills.
- Cats don't like elixirs.
- Cats don't like water.
- Cat's remember!
- Are steroids bad....

Maybe not so much in some cats

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Alyssa, Ashtyn, Andrea