slightly wet. For more intensive moisture replacement, wet-wrap therapy may be used.

Evidence supports that atopic dermatitis increases the risk of food sensitization and allergy. Early-onset persistent atopic dermatitis has been associated with sensitization to food allergens within the first 2 years of life. An Australian study demonstrated up to 50% of patients with early-onset and severe atopic dermatitis developed challenge-proven food allergy by 12 months. Infants with atopic dermatitis were approximately 5 times more likely to develop food allergy than those infants without atopic dermatitis. In those patients with established atopic dermatitis, treatments are aimed at barrier repair and protection and decreasing inflammation.

KEY LEARNING OBJECTIVES

- Develop a basic understanding of atopic dermatitis
- Discuss the atopic march
- Discuss therapeutic strategies of human barrier repair in atopic dermatitis

MULTIPLE CHOICE QUESTIONS

1. The clinical signs of canine atopic dermatitis may be associated with sensitization to which of the following?
   - **(A)** Environmental, food allergens, or with atopic-like dermatitis
   - **(B)** Environmental allergens only
   - **(C)** Food allergens only
   - **(D)** Food allergens and IgE–antibody-associated reactions only
2. The dogma that allergy results in canine and human atopic dermatitis is in fact a misconception. What is now the belief?
   - **(A)** Allergies develop resulting in epidermal barrier dysfunction and transepidermal water loss
   - **(B)** Genetic and environmental factors lead to impaired epidermal barrier function and immune dysregulation
   - **(C)** Inhalation of allergens causes the development of atopic dermatitis
   - **(D)** Raw food and grain-free diets cause alterations in the skin resulting in an abnormal skin barrier
3. It has been determined in human medicine that therapeutic strategies aimed at barrier repair may do which of the following?
   - **(A)** Lower the relative risk of atopic dermatitis development in neonates
   - **(B)** Afford no benefits for the skin and may sensitize patients to additional allergens
   - **(C)** Afford benefits for asymptomatic patients in the absence of atopic dermatitis but for those individuals with atopic dermatitis no benefits were afforded
   - **(D)** Increase the relative risk of atopic dermatitis development in neonates

Food allergies

Michael S. Canfield

Cutaneous adverse food reactions are divided into those that have a perceived immunological pathogenesis and those that do not. Much of what is taught regarding food allergies in veterinary medicine is dogma. The incidence of cutaneous adverse food reactions is reported to be 15–20% in patients with pruritus.

CUTANEOUS SIGNS OF FOOD ALLERGY

- Beyond pruritus, there is no consensus on the type and incidence of cutaneous manifestations of adverse food reactions
- Cutaneous adverse food reactions affect dogs and cats of any age, any breed, and both genders, with the proportion of juvenile dogs diagnosed about twice that of cats.

NON-CUTANEOUS SIGNS OF FOOD ALLERGY

- Gastrointestinal signs, symmetrical lupoid onychitis, conjunctivitis, sneezing and anaphylaxis are reported as associated with adverse food reactions in dogs
- Gastrointestinal, respiratory signs, conjunctivitis and hyperactive behaviour are reported with adverse food reactions in cats.

DIAGNOSIS OF FOOD ALLERGY

- The gold standard to diagnose adverse food reactions in dogs and cats remains an elimination diet with subsequent provocation trials
- Serum food-specific IgE and IgG show low repeatability and high variability in accuracy for dogs. The accuracy of testing serum for food-specific IgE in cats is low
- Currently, all other tests cannot be recommended for clinical diagnosis of adverse food reactions in dogs and cats.

Duration of elimination trials

To diagnose cutaneous adverse food reactions in at least 80% of dogs and cats, an elimination diet trial should last a minimum of 5 weeks in dogs and 6 weeks in cats. Increasing the duration of the elimination trial to 8 weeks will increase the sensitivity to more than 90% in dogs and cats. The veterinary surgeon may elect to perform provocative challenges soon after remission.

MOST COMMON FOOD ALLERGENS

Provocative challenges following dietary restriction leading to complete remission of clinical signs should begin with beef and diary, the most commonly recognized food allergens in dogs and cats. A dog living in Australia, Europe or North America, the allergens most likely contributing to cutaneous adverse food reactions are beef, dairy products, chicken, wheat and lamb. In cats the most common allergens are beef, fish and chicken.

Elimination diet trials are often conducted with commercial pet foods while relying on their labels to select novel ingredients. Pet food mislabelling appears rather common, even in those with 'novel' or 'limited' ingredients. Testing of hydrolysate-containing diets found only one instance of possible mislabelling. Over-the-counter 'single-protein diets' or canned meat products cannot be recommended. Analyses support the clinical reliability of an extensively hydrolysed diet.

KEY LEARNING OBJECTIVES

- Gain a greater understanding of cutaneous adverse reactions to food
- Understand the purpose of an elimination diet and the pitfalls in making a choice based on dietary histories
- Understand the information gleaned from literature review as it relates to food allergy

MULTIPLE CHOICE QUESTIONS

1. What are the most consistent clinical sign(s) of cutaneous adverse food reactions?
   - **(A)** Pruritus
   - **(B)** Gastrointestinal signs, sneezing and anaphylaxis
   - **(C)** Vomiting and diarrhoea
   - **(D)** Superficial pyoderma and pododermatitis
2. Diagnosis of cutaneous adverse reactions to food is accomplished with which of the following?
   - **(A)** Serum food-specific IgE testing in dogs and cats
   - **(B)** An elimination trial and provocative challenge
   - **(C)** Intradermal allergy testing specific for foods
   - **(D)** Patch testing for specific foods
3. To diagnose an adverse food reaction in 90% of affected patients, the elimination trial should continue for how long in dogs?
   - **(A)** 5–6 weeks
   - **(B)** 8 weeks
   - **(C)** 2 weeks
   - **(D)** 12 weeks

Anti-pruritic drugs 2020

Craig E. Griffin

The last 10 years has seen major developments in treatment options for chronic pruritic dogs. Not only have new drugs been developed, but better ways to use older drugs and the value of combination drug therapy have changed how we manage these potentially difficult cases. Ciclosporin, once believed to work by suppression of IL-2, has been shown to be likely to benefit atopic dogs by other mechanisms. The discovery that IL-31 was a major mediator of canine pruritus, and that its activity required Janus kinase 1(JK1) also led to the development of two other treatments. The drug oclacitinib, which selectively targets JK1, also helps by affecting other allergen interleukins, IL-2, -13, -6 and -4. The biological antibody lokivetmab binds IL-31 and does not act like a drug as it does not go intracellular or affect cellular receptors.

Knowledge of some of the pharmacokinetics of these treatments also allows us to improve the efficacy when we use them. Though ciclosporin is labelled to be given on an empty stomach, some dogs respond better when it is given with food. The recommended tablet dose of oclacitinib for the weight of the dog is not always the most effective and even the time of day you give oclacitinib can improve the client's perception of efficacy. Lokivetmab is actually approved at different dose rates in different countries, so it appears licensing requirements may have played a role, but these experiences also have led to improvements in clinical outcomes.

We have also learned that bathing and essential fatty acids can improve the efficacy of these drugs and treatment combinations will often enhance patient responses and client satisfaction. Even antihistamines, though not often effective as sole therapy, can play a role in managing atopic dermatitis. They can be helpful in treating acute flares even though this may be due to their sedative effect. Clients vary significantly in what aspects of long-term and short-term therapies are important to them. Sometimes something, such as frequent bathing, may not be suitable for long-term control but very valuable for dealing with acute flares. We also have treatments that vary in their route of delivery, frequency of administration and effort needed to deliver the treatment, which allows us to tailor treatments better to client desires and improve compliance. For some clients, the safety profile and types or frequency of side effects are the most important aspect to selecting a therapy for their pet, and accurate education on this topic is important for client satisfaction and comfort in their final decision making.

KEY LEARNING OBJECTIVES

- Learn how mechanism of actions compare between ciclosporin, oclacitinib and lokivetmab