Atopic Dermatitis (as written by Dr A.Carter, specialist dermatologist)

Diagnosis:

When pruritic (itchy) dogs are initially examined, the total pruritis may come from a number of differentcauses. The itch from each cause has a cumulative effect. Although many pruritic skin diseases have distinct clinical patterns, some cannot be immediately differentiated from each other. Bacterial and Malassezia infections and lfea infestations commonly aggravate ohter skin diseases and therefore these problems need to be ruled out before the underlying primary disease or diseases can be fully evaluated. When canine atopic dermatitis is suspected, there are 2 stages to the invedstigation:

1. Rule out other causes of the puritis
    a. Initially secondary bacterial and Malassezia infections are ruled out using diagnostic tests or treatment
    b. Ensure a flea control program is implemented (even if fleas are not seen)
    c. Rule out food hypersensitivity - from the clinical history or by performing an elimination diet
2. Once the other possible causes of pruritis are ruled out, a tentative diagnosis of atopic dermatitis may be made based on the history and clinical signs. Confirmation of the diagnosis can be made if an intradermal skin test or allergen specific IgE assay gives results consistent with the clinical signs.

Treatment options:

Once the diagnosis of atopic dermatitis is made, there are 4 therapeutic options. Unfortunately thay all have advantages and disadvantages.

1. Allergen specific immunotherapy. This is my favoured treatment particularly for young animals. This involves giving a steadily increasing dose of allergen immunotherapy. The aim of this treatment is to change the way the immune system recognises the allergens that cause atopic dermatitis.

Advantages: i. This treatment has no significant long term side effects, although during the induction phase there are occassionally mild problems or in rare cases, severe reactions.

ii. The treatment is effective in approximately 70% of cases, with half of these needing no other therapy and half needing markedly reduced medication to control the pruritis.

iii. Effective treatment results in a slow decrease in sensitivity to the allergens included in the immunotherapy. Therefore improvements are usually seen within 3-9 months although generally an 18 month course of therapy is recommended before therapy is considered to have failed.

iv. Therapy is usually continued for life, but in approximately 20% of cases with complete response, therapy can be withdrawn after 2 years. In approximately half of the remaining cases, the frequency of therapy can be reduced to monthly, resulting in decreased costs.

Disadvantages: i. In 30% of cases after 18 months the pruritis is unaffected.

ii. The cost of therapy varies according to the allergens included. In most cases a vial of therapy costs $275-375.

iii. The first vial lasts 3 months and subsequent ones 7 months if the standard protocols are used.

2. Prednisolone therapy. Is the second most common treatment for atopic dermatitis. It is often used for temporary relief of signs while immunotherapy is started.

Advantages: i. rapid action
ii. effective in most cases
iii. cheap to administer.

Disadvantages: i. A wide range of side effects, particularly in the long term.
1. Increased thirst and urination
2. Action directly on the brain resulting in increased appetitie and depression (rarely aggression or disorientation)
3. Suppressed immunity hterefore increased secondary bacterial infections of the skin and bladder and slower resolution of infections.
4. Catabolism of musclular and fibrous tissue resulting in muscular weakness, skin fragility, vascular weakness and joint disease.
5. Increased absorption of calcium from the bone, decreased absorption of calcium from the gut and increased gut and urinary calcium loss resulting in bone weakness.
6. Abnormal deposition of calcium in the skin resulting in calcinosis cutis.
7. Inhibition of hair growth resulting in poor hair coat and hair loss.
8. Suppression of secretions from skin glands.
9. Suppress thyroid hormone, growth hormone, sex hormone concentrations and reduce natural corticosteroid synthesis.
10. Inhibits action of insulin on target cells predisposing to Diabetes mellitus.

11. Increased gastric acid and pepsin secretion and decreased gastric mucosal cell proliferation predisposing to gastric ulceration.

12. May induce pancreatitis.

13. Increased glycogen storage in liver resulting in liver damage and swelling.

ii. To reduce the likelihood of side effects, long acting injectible corticosteroids are usually avoided and prednisolone is tapered to an alternate day regime. This is then tapered to the lowest effective dose. This dose may vary with the season. If modest does are used for periods up to three months, the risk of significant side effects is minimal, wheras if prednisolone is used for longer periods, much smaller doses are recommended.

3. Antihistamines and Essential fatty acids

A wide variety of antihistamines and essential fatty acids are used when treating atopic dermatitis. These drugs act to reduce the production or action of inflammatory mediators triggered by exposure to allergens.

a. **Advantages** i. Rarely result in long term side effects.

b. **Disadvantages** i. Rarely effective as a sole treatment.

ii. Usually have no effect on established inflammation, but they are helpful at preventing new inflammatory processes becoming established.

iii. Usually multiple antihistamines must be evaluated to find the most suitable options.

4. Cyclosporin (Atopica (R)):

a. **Advantages** i. Effective in 95% of cases of atopic dermatitis.

ii. Side effects are uncommon unless high dose rates are used.

iii. Kidney and liver damage have not been seen in toxicity studies.

b. **Disadvantages** i. Takes between 2-4 weeks to show any effect.

ii. Side effects include vomitting, diarrhoea, gingival hyperplasia and papilloma.

iii. Secondary bacterial and Malassezia infections may still occur.

iv. Very costly options, especially for large dogs.

1. Until the itch is well controlled usuallyat least 3-4 weeks, the recommended dose of 5mg/kg is administered daily.

2. The dose is then reduced to alternate days in 2/3 cases for a further month.

3. At least half of all dogs can then be reduced to dosing twice weekly.

This remains prohibitively expensive for most owners, therefore an alternative regime has been developed. This involves using a second drug to reduce the metabolism of the cyclosporin and therefore reduce its cost. In this case ketoconazole (a drug commonly used to control yeast infections) is administered on the same day as the cyclosporin capsule. Unfortunately this increases the risk of side effects, particularly when used long term, but it does reduce the cost. In some cases doses can be reduced to between 1-2mg/kg cyclospiron.