



Steroid usage for control of skin inflammation

What is Prednisone and how does it work?

Prednisone is a potent anti-inflammatory drug that stops itching and reduces inflammation of the skin. Prednisone is classified as a short-acting glucocorticoid. This drug is similar in structure and action to cortisol, a naturally-occurring substance in the body. Cortisol is produced by the adrenal glands, which reside next to the kidneys in the abdomen. The adrenal gland is stimulated to produce cortisol by a hormone produced in the pituitary gland, a very small gland in the base of the brain. The pituitary gland is stimulated by a hormone produced in the hypothalamus (also in the brain). The cortisol levels in the body are managed by a "negative-feedback" system. A signal is sent from the hypothalamus to the pituitary gland, then from the pituitary gland to the adrenal gland to release cortisol when the levels of cortisol in the blood are too low. When levels in the blood are very high, a signal is sent to stop the production and release of cortisol. Prednisone is similar to cortisol and also causes the above-mentioned actions to occur. Therefore, when we give prednisone, the adrenal glands reduce or stop release of cortisol and other related compounds. These other related compounds are necessary for normal body function and should not be inhibited long-term. Low-dose, alternate day (every 48 hours) therapy provides the anti-itching effects, without interfering significantly with the normal immune response or the glands in the body. This essentially provides a day of suppression of the glands, and then a day of normalcy. This is the safest way to use prednisone long-term for relief of itching. If the animal remains symptom-free, then we may further reduce the dosage to the lowest possible level that will control the itching and continue this dosage throughout the allergy season. Once the prednisone is discontinued, the processes in the body which produce inflammation return.

Why do we administer Prednisone this way?

Because of this suppression of the normal negative feedback mechanism, steroids must be reduced gradually (tapered) or the animal will be unable to respond appropriately to stress. We generally start an animal on steroids twice daily (every 12 hours) to eliminate the inflammation, then start to taper with an ultimate goal of achieving every other day dosing, with no visible signs of inflammation. We execute this tapering by reducing the frequency of administration of the steroid (i.e. from twice daily, to once daily, to every other day). If the animal stops taking the steroid and resumes skin inflammation at a later date, the process starting at twice daily dosage will need to be started again. If an animal suffers briefly from inflammation despite being on once daily or every other day therapy, the frequency of administration may be increased briefly (i.e. a dog on every

other day therapy begins itching and the steroid is increased to once daily, then the itching subsides).

Why does it matter what time of the day I give my animal Prednisone?

Cortisol, the naturally occurring steroid in the body, is secreted in various amounts during the day. In humans, the greatest amount is secreted shortly after we wake up for the day. In dogs and cats, a similar rhythm occurs. For this reason, we recommend that prednisone, when given only once per day, be given in the evening hours. This will help to keep a slightly elevated level during the entire day and help prevent inflammation.

What are the side effects of Prednisone?

Side effects are numerous and reflect individual sensitivity as well as overall dosage and duration of therapy.

Common:

- Increased Drinking
- Increased Urination
- Increased Appetite
- Weight Gain

Uncommon:

- Decreased Appetite
- Weight Loss
- Muscle Wasting
- Behavior Changes
- Loss of Skin Tone and Elasticity
- Bruising
- Decreased Immune System

