Cyclosporine (CsA) is a lipophilic drug with powerful immunomodulatory and immunosuppressive properties that has been recently used in immune-mediated dermatological problems in cats. The licensed product (ATOPICA® for Cats), a modified version of cyclosporine, is approved for the treatment of feline allergic dermatitis as manifested by excoriations (including facial and neck), miliary dermatitis, eosinophilic plaques and self-induced alopecia. However, given its immunomodulatory activity, there has been much interest in using it in other immune-mediated and allergic dermatologic conditions in cats, although controlled clinical trials are very limited.

**OBJECTIVES**

Main objectives of this work are:

- To understand cyclosporine mechanism of action and pharmacokinetic parameters.
- To make an updated review of its use on feline dermatological conditions.
- To point out and discuss the main adverse reactions.
- To discuss new directions that research could take in the future.

**MECHANISM OF ACTION**

CsA + cyclophilin-1 → inhibition of calcineurin → stops the activation of NFAT

- Inhibition of IL-2, a T-cell growth promoter, is CsA’s main mechanism of immunosuppression.
- In cats, CsA has been documented to suppress the transcription of IL-4, IFN-γ, TNF-α, GM-CSF and IL-10.
- CsA can also affect other cells, including B lymphocytes, antigen presenting cells, keratinocytes, basophils, mast cells, eosinophils and endothelial cells.

**FELINE ATOPIC SYNDROME**

King et al. (2012): randomized, double-blinded placebo controlled study with n=100 cats. Mean TLS improved >50% in 70% of cats treated with 7.0mg/kg, compared with 47% in the 2.5mg/kg group and 23% in the placebo group.

**EOSINOPHILIC GRANULOMA**

Guaiguère & Prélaud (2000): study with n=12 cats with EP, EG, IU. Complete regression was achieved in cats with EP and EG. Cats with IU only achieved partial regression.

Vercelli et al. (2004): retrospective study with n=7 cats with EP, IU and EG. After 30 days, all animals showed improvement. Complete remission was achieved after 60 days (5 cats) and after 90 days (2 cats).

**CHRONIC GINGIVOSTOMATITIS**

Vercelli et al. (2006): study with n=8 cats. 4 cats went into total remission, remaining cats showed an improvement of clinical signs (40-70%).

Lommer (2013): randomized, placebo-controlled, double-blinded clinical study with n=16 cats. 7 of 9 cats receiving CsA demonstrated a >40% of improvement vs 1 of 7 cats in the placebo group.

**PEMPHIGUS FOLIAEUS**

Irwin et al. (2012): retrospective study with n=15 cats with PF. All cats treated only with CsA were weaned off GC and scored a good response. One cat in the CsA group + one cat in the CsA+Chlorambucil group achieved remission of PF.

**PLASMA CELL PODODERMATITIS**

CsA given at a dose of 7mg/kg/day seems a good alternative for those patients with an incorrect response to doxycycline.

**CONCLUSIONS**

- CsA is a good option for the treatment of cats with Feline Atopic Syndrome.
- It seems a promising therapy for the treatment of several immune-mediated skin diseases, however, larger scale, randomized, double blinded and placebo-controlled studies are required.
- Monitoring of the patient during the treatment with CsA is highly advisable.
- Further research is also required in order to establish adverse effects associated with a long-term use of CsA.
- Development of other routes of administration could also be a good direction for future research, in order to make easier the administration to cats.

**SIDE EFFECTS**

**REFERENCES**


