



TACROLIMUS & PIMECROLIMUS

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Both tacrolimus and pimecrolimus are utilized in dermatology for their topical anti-inflammatory properties in the treatment of **atopic dermatitis**. In contrast to **imiquimod**, these non-steroidal medications down-regulate the immune system. Tacrolimus is manufactured as 0.03% and 0.1% ointment while pimecrolimus is distributed as a 1% cream. Each agent has been FDA approved for short and long-intermittent treatment of atopic dermatitis in children as young as 2 years of age. Both medications are routinely applied twice daily to the affected area until clinical improvement is noted.

Mechanism: Tacrolimus and pimecrolimus fall into the category of topical calcineurin inhibitors. By interfering with cellular signals, these agents cause inhibition of T-lymphocyte activation and prevent the release of cellular mediators known as cytokines. In doing so, tacrolimus and pimecrolimus cause a decrease in the immune response at a local level.

Uses: Tacrolimus and pimecrolimus are typically considered second-line agents for **atopic dermatitis**. They are indicated when other traditional therapies like emollients and low dose steroids are ineffective or unsafe.

The response to these agents is typically slow, occurring over days to weeks. Excellent responses to these agents are noted, especially in areas of thin skin like the face and neck. Since both agents are similar, patient vehicle preference and clinical severity may help determine which agent is used. It is important to know that exacerbations may still occur while using these medications. This may necessitate occasional use of **topical steroids** to treat an acute flare. The major benefit of these topical medications is their ability to be used for long-term treatment of atopic dermatitis allowing you to avoid continuous topical steroid therapy.

It is not recommended that these agents be used in combination with occlusive dressings, **phototherapy** or in immunocompromised and transplant patients.

Side Effects: Both tacrolimus and pimecrolimus have demonstrated an excellent safety record. The most frequent side effect experienced is local burning and stinging; most patient experience relief with repeated application. A small minority of patients (~10%) experienced mild to moderate flushing with co-ingestion of alcohol but has not caused them to discontinue treatment. Additionally, eruptions of **acne** and **rosacea** lesions have been demonstrated in conjunction with these agents and should be monitored by your dermatologist. Other side effects include headache and mild flu-like symptoms.

An FDA mandated black-box warning has been added to tacrolimus and pimecrolimus due to a theoretical risk for systemic immunosuppression. Interestingly, numerous research studies have demonstrated no therapeutic blood levels in patients and no increased risk for malignancy compared to the general public.

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