



Title	The Effectiveness and Cost Effectiveness of Pimecrolimus and Tacrolimus for Atopic Eczema: A Systematic Review and Economic Evaluation
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Aim

To consider the effectiveness and cost effectiveness of pimecrolimus for mild to moderate atopic eczema and tacrolimus for moderate to severe atopic eczema compared with current standard treatment in adults and children.

Conclusions and results

The pimecrolimus trial reports were of varying quality. However, when compared with a placebo (emollient), pimecrolimus was found to be more effective and to improve quality of life. Little evidence is available about pimecrolimus compared with topical corticosteroids. Compared with a placebo (emollient), both 0.03% and 0.1% tacrolimus were found to be more effective. Compared with a mild corticosteroid, 0.03% tacrolimus is more effective in children as measured by a 90% or better improvement in the Physician's Global Evaluation (PGE). Compared with potent topical corticosteroids, no significant difference in effectiveness is seen with 0.1% tacrolimus as measured by a 75% or greater improvement in the PGE. Minor adverse effects at the application site are common with tacrolimus. However, this did not lead to increased rates of withdrawal from treatment in trial populations. The PenTag economic model demonstrates a large degree of uncertainty, which was explored in both deterministic and stochastic analyses. This is the case for the cost effectiveness of pimecrolimus and tacrolimus in first- or second-line use compared with topical steroids. In all cases immunosuppressant regimes were estimated to be more costly than alternatives, and differences in benefits were small and uncertain.

Recommendations

Limited evidence from a small number of randomized controlled trials (RCTs) would suggest that pimecrolimus is more effective than placebo treatment in controlling mild to moderate atopic eczema. Although greater than for pimecrolimus, the evidence base for tacrolimus in moderate to severe atopic eczema is also limited. At both 0.1% and 0.03% potencies, tacrolimus appears

to be more effective than the placebo treatment and mild topical corticosteroids. However, these are not the most clinically relevant comparators. Compared with potent topical corticosteroids, no significant difference was shown. Short-term adverse effects with both immunosuppressants are relatively common, but appear to be mild. Experience of long-term use of the agents is lacking, so the risk of rare but serious adverse effects remains unknown. No conclusions can be confidently drawn about the cost effectiveness of pimecrolimus or tacrolimus compared with active topical corticosteroid comparators.

Methods

The systematic review was carried out using standard methodological guidelines and a stringent quality assessment strategy. A state transition (Markov) model was developed to estimate the cost utility of tacrolimus and pimecrolimus separately, compared with current standard practice with topical corticosteroids, a) as first-line treatment and b) as second-line treatment. Pimecrolimus was also compared to emollients only.