

IN BRIEF A Summary of the Evidence

Imiquimod for the Treatment of Actinic Keratosis: A Review

Key Messages

- For actinic keratosis, imiquimod (IMQ) appears to be better than placebo with respect to the complete clearance of lesions.
- When comparing IMQ with other treatments for actinic keratosis with respect to the complete clearance of lesions:
 - One network meta-analysis ranked fluorouracil as the most efficacious treatment.
 - The other network meta-analysis ranked aminolevulinic acid photodynamic therapy (specifically the gel formulation) as the most efficacious treatment, followed by IMQ (specifically a four-week course of 5% IMQ).
 - For reducing the number of actinic keratosis lesions, aminolevulinic acid photodynamic therapy might be more effective than IMQ (based on one study), and a combination of cryotherapy and IMQ might be more effective than cryotherapy alone (based on one study).
- Treatment with IMQ has been associated with local skin irritation.
- Economic studies conducted in Europe suggest that ingenol mebutate might be more cost-effective than IMQ and that IMQ might be more cost-effective than cryotherapy; however, the generalizability of these findings to the Canadian setting is unclear.

Context

Actinic keratosis, also known as solar keratosis, is a skin disease caused by chronic exposure to sunlight. It appears as scaly lesions on the skin resulting from an abnormal growth of cells in the outermost layer of the epidermis. There may be a single lesion or multiple lesions, and they are typically found on areas of skin that are regularly exposed to the sun, such as the face, neck, hands, forearms, and balding scalps.

Men are more likely to develop actinic keratosis than are women. In addition, people with fair skin are at a higher risk, and the risk

increases with age. Actinic keratosis lesions can progress to squamous cell carcinoma, which is the second most common type of non-melanoma skin cancer.

Technology

A variety of treatment options are available for actinic keratosis. These include cryotherapy and photodynamic therapy as well as the use of topical agents such as imiquimod (IMQ), fluorouracil, diclofenac, and ingenol mebutate. IMQ is an immune-response modifier that has strong antiviral and antitumour properties. Cryotherapy uses liquid nitrogen to destroy tissue by freezing it to -196°C , and photodynamic therapy uses visible light (blue or red) and a light-sensitive compound to destroy cancer cells. Fluorouracil reduces cell proliferation and induces cell death, particularly in cells with high cell division rates. Diclofenac is a nonsteroidal anti-inflammatory drug (NSAID) used to treat pain, and how it works to treat actinic keratosis is unclear. Ingenol mebutate is believed to have a toxic effect on and trigger inflammation in the affected cells, thereby inducing cell death. Of all these treatments, there appears to be no consensus as to which are optimal.

Issue

A review of the clinical and cost-effectiveness of IMQ compared with the other treatments for actinic keratosis will help inform treatment decisions.

Methods

A limited literature search was conducted of key resources, and titles and abstracts of the retrieved publications were reviewed. Full-text publications were evaluated for final article selection according to predetermined selection criteria (population, intervention, comparator, outcomes, and study designs).

Results

The literature search identified 204 citations, with no additional articles identified from other sources. Of these, nine publications met the criteria for inclusion in this review – three systematic reviews, three randomized controlled trials, and three economic studies.

Read more about CADTH and its review of imiquimod for the treatment of actinic keratosis at:



cadth.ca/imiquimod-treatment-actinic-keratosis-review-clinical-and-cost-effectiveness-0.

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