Actinic keratoses (solar keratoses)

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Recurrence: refer to Dermatology

Inadequate response: repeat course of topical fluorouracil (Efudix) once

Persistent inadequate response or recurrence < 6 months: refer to Dermatology

Recurrence > 6 months: repeat treatment with topical fluorouracil (Efudix)

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1 Background information

Quick info:
Actinic Keratosis

Synonyms: actinic (solar) keratosis

The term actinic keratosis (AK) was coined in 1958 and means literally thickened scaly growth (keratosis) caused by sunlight (actinic). Solar keratoses, or AKs, are ultraviolet (UV) light-induced lesions of the skin, which are by far the most common lesions with malignant potential to arise on the skin (they can progress to invasive squamous cell carcinoma (SCC)).

AK is seen in fair-skinned persons in areas of long-term sun exposure, like Australia, where about half of the population over the age of 40 years are affected. Although the condition is very similar to Bowen's disease or carcinoma in situ, most lesions do not progress to malignant change. However, recognition and simple treatment help to prevent progression.

Pathophysiology:

- cells within actinic keratoses (AKs) show characteristic UV-induced gene mutations
- histologically AKs share features with squamous cell carcinoma (SCC). AK is an epidermal lesion characterised by:
  - collections of atypical, pleomorphic keratinocytes in the basal layer which can extend to the upper granular and cornified layer
  - the epidermis is abnormal in architecture, with acanthosis, parakeratosis, and dyskeratoses. Cellular atypia is present with keratinocytes varying in size and shape
  - mitotic figures are present.
- it has features of Bowen's disease or carcinoma in situ:
  - they can be distinguished more by the degree of cellular change and the extent of the lesions rather than differences in the features of individual cells
  - often, marked hyperkeratosis and areas of parakeratosis with loss of the granular layer are present
  - a dense inflammatory infiltrate is usually present
- AK is considered by some to be the the earliest manifestation of SCC and should be regarded as such rather than as a precancerous lesion.

Epidemiology:

Actinic keratosis (AK) occurs most often in whites at a rate according to cumulative UV exposure. Frequency increases according to a number of risk factors:

- increasing age, as the dose of UV is cumulative
- proximity to the equator as this affects UV dosage and cumulative exposure
- lifestyle and time spent outdoors
- outdoor lifestyles, whether with work or recreation and sport, will increase risk
- other specific practices such as use of tanning booths. Artificial sunlight is a risk factor and may produce lesions in unusual places
- how fair the individual's skin is. Skin is graded from Fitzpatrick type I to VI according to sensitivity to sunlight, as displayed by a tendency to burn or to tan. These lesions are almost entirely confined to fair skin types I and II.
- patients who are immunosuppressed following organ transplantation have a markedly increased risk of developing AKs and of developing malignant change in the AKs.

AKs are more common in men than in women. Traditionally men are more likely with work and recreational activities to spend time outdoors.AK has also been associated with a high-fat diet.

Overall, the rate in Australia is highest with a prevalence around 50%. In the USA the rate is estimated to be between 11% and 26%. Elsewhere they are very common in fair-skinned people in countries like South Africa and New Zealand. They tend to present between the ages of 30 and 60 years but can present earlier or later.

References:
Learning link: PRIMARY CARE DERMATOLOGY SOCIETY - http://www.pcds.org.uk
http://www.patient.co.uk/doctor/Actinic-(Solar)-Keratosis.htm

2 Patient information

Quick info:
3 Updates to this pathway

Quick info:
This pathway has been locally developed for using in South West Hampshire.
Contributors to this pathway:
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• Dr Simon Hunter, NHSH
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4 Preventative measures: advice for all patients

Quick info:
Patients should be advised to:
• use SPF15 - 30 (sunblock) April to September, applied to exposed areas (face, neck, hands)
• wear a hat with at least a 3 inch brim April to September
• use simple emollients for symptomatic roughness and / or irritation

5 Actinic keratosis

Quick info:
Actinic keratoses is also know as solar keratoses. Usually multiple, irritable, flat, pale or reddish-brown lesions with a dry adherent scale. The vase majority of actinic keratoses DO NOT progress to squamous cell carcinoma (SCC).
Evidence suggests that the annual incidence of transformation from actinic keratoses to SCC is less than 0.1%. The risk is higher in immunocompromised patients.
It is not necessary to refer patients with actinic keratoses, however those with multiple lesions or widespread changes are most at risk from developing SCC and can potentially benefit most from treatment.
ALL patients should be given advice about sun protection and for those with a few localized lesions or mild changes that are not too widespread, this may well be all that is required. Simple emollients often alleviates irritation and roughness.
Evolving SCC within actinic keratoses can be recognized by increasing hyperkeratosis, rapid growth and / or discomfort localized to one area.

6 Hyperkeratotic and localised

Quick info:
These may be:
• mainly keratotic lesions (hard, scaly surface) for which liquid nitrogen is the most appropriate treatment or
• flatter lesions, which can be treated with topical therapies or liquid nitrogen if available
Give advice about sun protection. For those with a few localized lesions, this may well be all that is required. Simple emollients often alleviates irritation and roughness.

8 If treating with liquid nitrogen, use community service and do NOT refer to hospital

Quick info:
Use locally agreed community based centre for cryotherapy.
Treat with one to two 5 - 10 second freeze-thaw cycles (longer treatment times for more keratotic lesions).
Counsel patient about possible scarring.
9 More severe: treat with topical fluorouracil (Efudix)

Quick info:
Treat with fluorouracil (Efudix) 2x/day:
  • face - 2-3 weeks
  • hand/arms - 3 weeks
Warn patients to expect an inflammatory response. If severe, stop treatment temporarily and give mild - moderate strength topical steroid.
Efudix is safe, effective, with little systemic absorption. Localized hyperkeratotic areas can be treated with cryotherapy prior to efudix, if available.
Treatment of lesions on the head & neck is often associated with inflammation, but lesions on the arms & legs less so.

10 Mild: consider if treatment is required

Quick info:
Give advice about sun protection. For those with mild changes that are not too widespread, this may well be all that is required.
Simple emollients often alleviates irritation and roughness.
Consider treating with diclofenac sodium 3% (Solaraze) gel 2x per day for 3 months
Solaraze will produce much less inflammation than Efudix and is better tolerated. However it is less effective than Efudix for thicker lesions.

12 Inadequate response: treat with topical fluorouracil (Efudix)

Quick info:
Treat with fluorouracil (Efudix) 2x/day:
  • face - 2 weeks
  • hand/arms - 3 weeks
Note: may get inflammatory response. Stop treatment and give mild – moderate strength topical steroid.
Efudix is safe, effective, with little systemic absorption. Localized hyperkeratotic areas can be treated with cryotherapy prior to efudix, if available. Treatment of lesions on the head & neck is often associated with inflammation, but lesions on the arms & legs less so.
Patients should also be aware that Efudix can highlight other, previously not identified lesions. These may become inflamed in addition to the primary area being treated.
If patients have multiple actinic keratoses, Efudix can be used as a general "field" treatment to all areas, e.g. whole forehead, scalp or face.

13 Inadequate response: consider repeat freeze or treat with treat with topical fluorouracil (Efudix)

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14 Inadequate response: repeat course of topical fluorouracil (Efudix) once
Actinic keratoses (solar keratoses)

Quick info:
Actinic damage on legs may be slower to respond and require a second treatment course immediately to maximize the response. Those with moderate or severe widespread actinic damage may require an annual course of topical therapy, as treatment is rarely curative.

15 Inadequate response: removal by curettage in the community

Quick info:
Curette removal - tissue to histology
Actinic keratoses (solar keratoses)
Medicine > Dermatology > Actinic keratoses (Solar keratoses)

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