An 81-year-old retired engineer presented with widespread cheek, temple and scalp actinic (solar) keratoses (AKs). He had a long history of sun exposure and had light skin and fair hair. His flat, scaly, crusty, erythematous patches had been a problem for over 10 years. In addition, he had a long history of nonmelanoma skin cancer. He was currently taking prednisolone 5mg to control his COPD.

He had been given 5-fluorouracil (Efudix) 5 per cent 11 years previously to manage his AKs. This treatment controlled the disease on his cheeks, but failed to treat his scalp lesions. He presented again to the clinic and was prescribed diclofenac (Solaraze) 3 per cent gel as a different method to control the AKs. This gave limited benefit and when the patient presented again six months later, cryotherapy and another trial of 5-fluorouracil 5 per cent was used; this time the 5-fluorouracil caused a very florid uncomfortable inflammatory reaction and the patient was not keen to have this treatment again.

The lesions were managed by further cryotherapy until some were looking more atypical and it was prudent to perform three punch biopsies to get histological certainty over the diagnosis. This demonstrated that some of the lesions had developed into bowenoid AK (squamous cell carcinoma in situ). He was again seen by the dermatology team, who felt that imiquimod treatment would likely cause an uncomfortable degree of inflammation, so the lesions were managed by cryotherapy to good effect.

Over the coming years, further Bowen’s disease and squamous cell carcinomas were diagnosed; these were managed by curettage and cautery and excision (with or without split-thickness skin grafts), respectively. Finally, when the patient presented on his most recent admission, he was prescribed ingenol mebutate (Picato) 150µg per g to manage his AKs.

AKs are premalignant lesions characterised by a dysplastic basal layer of the epidermis. They are usually found at sun-exposed sites and are common in light-skinned, particularly older, people who have had chronic sun exposure. Other risk factors for their development include immunosuppression and a previous diagnosis of skin cancers.

The diagnosis is clinical; however, where there is uncertainty or lack of response to treatment a skin biopsy is used to confirm the diagnosis. As this case demonstrates, the management of AK can be difficult with some patients having widespread field change. Furthermore, unchecked lesions bear the risk of progressing to become squamous cell carcinomas (up to 10 per cent).

There are a number of different treatment modalities to manage these lesions and though widespread disease might be better managed by a specialist, solitary patches can easily be managed in the community. Although a proportion of AKs will spontaneously regress, higher risk persistent lesions will likely need treatment. There are a
number of pharmacological and surgical treatment methods.

Pharmacological management options include: topical 5-fluorouracil, diclofenac topical gel, imiquimod and ingenol mebutate (see Table 1).2,3,5

A Cochrane review from 2012 found that all four of these options had similar effectiveness for field-directed application, but varied in their side-effect profile and cosmetic acceptability. Moreover, they differ in their length of application, which might affect patient adherence with the therapy. Options for the clearance of individual lesions include cryotherapy, curettage and cautery, and photodynamic therapy.2,3

Clearly, prevention is better than cure and those patients who already have AKs or at risk of their development should be prescribed high skin protection factor sun cream (SPF 50) and counseled about reducing their sun exposure.

References

Dr William Hunt is an FY2 doctor and Dr Emily McGrath is consultant dermatologist at the Royal Devon and Exeter Hospital

Table 1. Dosage, side-effects and cost (MIMS September 2014) of pharmacological preparations used to manage AK5

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Method</th>
<th>Common side-effects</th>
<th>Cost of treatment</th>
</tr>
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<tbody>
<tr>
<td>5-Fluorouracil 5%</td>
<td>once or twice daily to affected area for 3–4 weeks</td>
<td>local irritation photosensitivity</td>
<td>40g tube = £32.90</td>
</tr>
<tr>
<td>Diclofenac sodium 3%</td>
<td>twice daily to affected area for 60–90 days</td>
<td>hypersensitivity caution in asthma photosensitivity</td>
<td>50g = £38.30 100g = £76.60</td>
</tr>
<tr>
<td>Ingenol mebutate</td>
<td>0.015% for face and scalp, once daily for 3 days 0.05% for trunk and extremities, once daily for 2 days</td>
<td>local skin reactions: erythema, blistering, pain, pruritus and infection headache</td>
<td>150µg/g, 3 x 0.47g single-use tubes = £65 500µg/g, 2 x 0.47g single-use tubes = £65</td>
</tr>
<tr>
<td>Imiquimod 5%</td>
<td>three times a week at night for 4 weeks</td>
<td>local skin reactions (see above) headache flu-like illness myalgia</td>
<td>12 single-use sachets = £48.60</td>
</tr>
</tbody>
</table>

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