Summary

Cost and effectiveness of prescribing emollient therapy for atopic eczema in UK primary care in children and adults: a large retrospective analysis of the Clinical Practice Research Datalink


Introduction

- Dry skin and atopic eczema (DS&E), also described as atopic dermatitis (AD), is a common condition characterised by inflammatory flares followed by periods of remission.
- In the UK, the prevalence is estimated to be as high as up to one third of individuals and the estimated annual cost of treatment is significantly in excess of £100 million.
- Flares may occur as often as 2 to 3 times a month, last around 2 weeks and significantly adversely affect quality of life.
- Emollients are recommended as a first line treatment for DS&E and at all steps in the step-wise approach to the treatment of atop eczema. They reduce the number of flares, prolong the interval between flares and reduce the need for corticosteroids.
- Using emollients may also reduce the risk of developing AD. In studies of neonates at high risk of developing AD, use of emollients beginning within 3 weeks after birth for 24-32 weeks reduced the risk of developing AD by 32% to 50%.
- The cost of emollients in treatment of DS&E may be offset by reduction in the costs of other necessary treatments.

Aims and methods

- The purpose of this study was to investigate the emollient use and healthcare utilisation in patients with DS&E between years 2008 and 2012.
- It was a retrospective observational group study using a database of anonymised patient records.
- The group comprised (1) all patients aged 1 year and older at first diagnosis of DS&E (index) who had at least 12 months pre- and 2 years post-index complete medical history, and (2) patients less than 1 year of age at index who had complete medical records in the database from birth to at least 2 years post-index.
- Comorbidities were recorded, including atopic diseases often associated with the ‘atopic march’ (asthma, food allergies and allergic rhinitis).
- Charlson Comorbidity Index (CCI), which is predictive of mortality based on the presence of 19 conditions, was also evaluated and all patients with CCI ≥5 were excluded, because significant comorbidities may act as confounders in the analysis.
- Patients with coincident skin conditions that might require topical corticosteroids were excluded.
- Patients were categorised into 2 groups:
  - Emollient group (n=45 218): At least 2 distinct emollient prescriptions within 6 months of index;
  - Non-emollient group (9780): At least 2 healthcare visits with diagnoses of DS&E within 6 months of index, but no emollient prescriptions at any time from index to 2 years post-index.
- For comparison, patients in the two groups were matched to each other 1:1 based on age, presence of AD (defined as having at least one of the following conditions: food allergy, allergic rhinitis, asthma), sex and index diagnosis.
Outcomes
1. Frequency and cost of visits with DS&E diagnoses;
2. Total cost of prescriptions provided during visits with DS&E diagnoses;
3. Presence of at least one prescription for potent/very potent topical corticosteroid provided during visits with DS&E diagnoses;
4. Presence of at least one prescription for an antimicrobial-containing medication during visits with DS&E diagnoses.

Results
- The age distribution and percentages of patients with AD differed significantly between groups (Figure 1 and Table 1).
- The most prevalent diagnosis in both groups was AD/eczema.
- 55% of patients who received an emollient were younger than 16 years of age, whereas 85% of those who did not were older than 16 years of age.
- Direct matching to normalise differences between groups in age, presence of atopic disease and index diagnosis resulted in 7846 patients in both matched emollient and non-emollient groups.

![Figure 1. Age distribution](image)
Table 1. Distribution of AD at index (percentage)

<table>
<thead>
<tr>
<th>Disease type</th>
<th>Emollient group (n=45 218)</th>
<th>Non-emollient group (n=9780)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atopic dermatitis/eczema</td>
<td>44</td>
<td>26</td>
</tr>
<tr>
<td>Contact dermatitis</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Dermatitis NOS</td>
<td>6</td>
<td>14</td>
</tr>
<tr>
<td>Dermatitis/dermatoses</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Eczema (not otherwise specified)</td>
<td>18</td>
<td>15</td>
</tr>
<tr>
<td>Flexural eczema</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Hand eczema</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Infantile eczema</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>Infected eczema</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Itch</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Pruritus (not otherwise specified)</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Seborrheic dermatitis capitis</td>
<td>0.45</td>
<td>6</td>
</tr>
<tr>
<td>Skin irritation</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

Costs of healthcare utilisation (Fig. 2)

- Costs over the 2-year period were approximately the same in the two groups, with the cost of emollient being offset by lower costs for healthcare visits and other prescriptions.
- The emollient group had a significantly lower number of healthcare visits, with a 9.06% (95% confidence interval [CI]: 7.19-10.97%) reduction in healthcare visits vs. the emollient group.
- The costs of primary healthcare visits was 8.74% (95% CI: 6.96-10.56%) lower in the emollient group.

Use of additional medications (Fig 3)

- Emollient use was associated with reduced prescriptions of potent or very potent topical corticosteroids. The odds of being prescribed a potent or very potent topical corticosteroid was 18% higher in the non-emollient group (odds ratio, OR: 1.18; 95%CI: 1.10-1.26).
- Emollient use was associated with reduced prescriptions of antimicrobials. The odds of being prescribed an antimicrobial-containing prescription was 13% higher in the non-emollient group (odds ratio, OR: 1.13; 95%CI: 1.06-1.21).
Figure 2. Healthcare costs

Figure 3. Use of additional medication
Discussion and conclusions

- In patients with a diagnosis of DS&E, in comparison to no emollient prescription, emollient prescription was associated with fewer clinic visits and lower costs of primary care visits.
- Reducing patient visits to primary care benefits the patient and reduces the burden on the healthcare system.
- Emollient use had a steroid-sparing effect, in that it was associated with fewer prescriptions for potent or very potent topical corticosteroids and also fewer prescriptions for antimicrobial-containing medications.
- Additional costs of emollient therapy was offset by these cost savings.