Economic evidence for the prevention and treatment of atopic eczema: a protocol for a systematic review

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Abstract

Background

Eczema, synonymous with atopic eczema or atopic dermatitis, is a chronic skin disease that has a similar impact on health-related quality of life as other chronic diseases. The proposed research aims to provide a comprehensive systematic assessment of the economic evidence base available to inform economic modelling and decision making on interventions to prevent and treat eczema at any stage of the life course. Whilst the Global Resource of Eczema Trials (GREAT) database collects together the effectiveness evidence for eczema there is currently no such systematic resource on the economics of eczema. It is important to gain an overview of the current state of the art of economic methods in the field of eczema in order to strengthen the economic evidence base further.

Methods/design

The proposed study is a systematic review of the economic evidence surrounding interventions for the prevention and treatment of eczema. Relevant search terms will be used to search MEDLINE, EMBASE, Database of Abstracts of Reviews of Effects, Cochrane Database of Systematic Reviews, Cochrane Central Register of Controlled Trials, NHS Economic Evaluation Database, Health Technology Assessment, Cumulative Index to Nursing and Allied Health Literature, Econ Lit, Scopus, Cost-Effectiveness Analysis Registry and Web of Science in order to identify relevant evidence. To be eligible for inclusion studies will be primary empirical studies evaluating the cost, utility or full economic evaluation of interventions for preventing or treating eczema. Two reviewers will independently assess studies for eligibility and perform data abstraction. Evidence tables will be produced presenting details of study

characteristics, costing methods, outcome methods and quality assessment. The methodological quality of studies will be assessed using accepted checklists.

Discussion

The systematic review is being undertaken to identify the type of economic evidence available, summarise the results of the available economic evidence and critically appraise the quality of economic evidence currently available to inform future economic modelling and resource allocation decisions about interventions to prevent or treat eczema. We aim to use the review to offer guidance about how to gather economic evidence in studies of eczema and/or what further research is necessary in order to inform this.

Registration

PROSPERO registration number: CRD42015024633

Keywords:

Eczema; Economics; Costs; Health-related quality of life; Cost effectiveness

BACKGROUND

In the UK the lifetime prevalence of eczema is estimated to be between 16% and 20% making it the commonest inflammatory skin condition in children and it has been increasing in “western style” environments (Williams et al. 2008, Williams 2005, Kay et al 1994). In the UK, the age-sex standardised incidence and lifetime prevalence of eczema has increased between 2001 and 2005 from 9.58 per 1000 to 13.58 per 1000 patients and 77.78 per 1000 to 115.26 per 1000 respectively (Simpson et al, 2009). Up to 50% of childhood cases will experience recurrence in adulthood (Williams 2005). Eczema is largely managed in primary care. Skin conditions are the commonest new

reason patients consult their GP (Schofield et al, 2011). Eczema has been found to have a similar impact on health-related quality of life as other common childhood conditions such as asthma and diabetes (Lewis-Jones, 2006). Eczema impacts quality of life by causing itching, sleep loss and social stigma for the child. Families may also suffer from sleep loss and time taken off work to accompany children to health appointments (Paller et al, 2002). The condition is associated with atopy so children with the condition are more likely to develop asthma and allergic rhinitis (Hon et al, 2012). It is also believed that eczema has large cost implications. For instance, in 1995-6 the total annual UK cost of eczema in children aged 5 years or younger was estimated as £47 million (£80 per child) (Emerson et al, 2001). Looking at a broader age range, the UK total annual cost was estimated to be around £465 million, of which £125 million were NHS costs, £297 million costs incurred by patients and £42 million by society in terms of lost productivity (price year not reported) (Herd et al, 1996). These UK based estimates of the total annual UK costs of eczema are now dated, the estimates were based on small samples [146 in Herd et al 1996 and 1523 in Emerson et al 2001], and the range of treatments available has increased and is likely to increase in the future with the addition of new biologics (Howell et al, 2015).

Despite Eczema being common there remain many unknowns about how to prevent and treat the condition. The James Lind Alliance (JLA) Priority Setting Partnership (PSP) on eczema illustrates this (http://www.jla.nihr.ac.uk/priority-setting-partnerships/eczema and Batchelor et al, 2013). The JLA facilitates disease specific PSPs that bring together patients, carers and health professionals to identify and prioritise research for the treatment uncertainties of the disease of interest (http://www.jla.nihr.ac.uk/). The eczema PSP was established in 2010 with partners

drawn from academic, NHS and charitable sectors and resulted in 14 treatment uncertainties being prioritised (Batchelor et al., 2013).

In order to draw together the effectiveness evidence of interventions for eczema, The Global Resource of Eczema Trials (GREAT) database was established (Nankervis et al, 2011) and includes details of over 600 systematic reviews and randomised controlled trials. It does not, however, identify or bring together the economic literature on eczema and thus this review attempts to do this. There is likely to be less economic evidence, compared to effectiveness data, for eczema. Indeed the English National Institute of Health and Care Excellence (NICE) has only considered economic models for two areas of eczema care: an educational intervention for those with eczema aged under 12 (NICE, 2007) and Tacrolimus and pimecrolimus for atopic eczema (NICE, 2004). It is, therefore, important to identify the current state of economic evidence addressing eczema in order to inform the design of future economic research in the area.

The proposed systematic review will address the following four research questions:

1. What type of health economic evidence has been used in the evaluation of the prevention and treatment of atopic eczema?

2. Are interventions to prevent and treat atopic eczema cost effective?

3. What is the quality of the health economic evidence for the prevention and treatment of atopic eczema?

4. What are the current gaps in the existing research?

METHODS/DESIGN

Protocol and registration

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocols (PRISMA-P) statement recommendations were used to develop the methods for this systematic review and will be used in reporting the results from the study (Shamseer et al 2015). This protocol has been registered in the International Prospective Register of Systematic Reviews (PROSPERO) CRD42015024633. Should protocol amendments be necessary, these will be documented including details of the date, changes made and the rationale for changes.

Literature search

The following electronic databases will be searched: MEDLINE, EMBASE, Cumulative Index to Nursing and Allied Health Literature, Cochrane Central Register of Controlled Trials, Database of Abstracts of Reviews of Effects, Cochrane Database of Systematic Reviews, NHS Economic Evaluation Database, Econ Lit, Scopus, Health Technology Assessment, Cost-Effectiveness Analysis Registry and Web of Science. Search results will be downloaded to EndNote version 7 where duplicates will be identified and removed.

Reference lists of potential eligible studies, reviews, guidelines or other sources will be screened for additional literature. Authors of published abstracts and conference

proceedings will be contacted by email to establish if a full paper has since been published in the grey literature.

The search strategy (with interface and coverage dates) is available in Appendix 1 to this protocol.

Eligible studies

A study will be included if it reports primary data on cost and/or outcome (utility or willingness to pay) data on atopic eczema. The primary interest is in full economic evaluations (Cost effectiveness, cost utility, cost benefit, cost minimisation) although other partial economic evidence will also be included where the study has an explicit economic objective, this is likely to include cost consequence analyses, cost analyses, utility assessment, or willingness to pay/accept studies. There will be no restriction on the study designs used in the economic studies so, for example, economic studies conducted alongside randomised controlled trials, as part of observational studies, or as decision model-based analyses will be included. Nor will there be any restrictions on type of setting. The search was undertaken on the 9th October 2015 so only studies published before this date are included. Only full text articles published in the English Language will be included, abstracts and letters will be excluded. Where two or more studies appear to be reporting on the same dataset or using the same model, the most comprehensive paper will be included unless each paper reports on a different aspect or in relation to a different jurisdiction/population (in the case of modelling studies).

DATA COLLECTION

Study selection

Two independent reviewers will assess the titles and abstracts retrieved in the literature search against our inclusion criteria. In a second stage, full-text articles for those seeming to fit the criteria or where there is uncertainty about relevance will be retrieved and their eligibility assessed according to criteria set out in Table 1. Where disagreements occur a third reviewer will be involved.

Data abstraction and management

Data will be extracted independently by two reviewers and entered into an electronic data extraction form developed in Microsoft Excel, with the third reviewer consulted in case of disagreements that cannot be resolved between the two reviewers. A full list of the extraction fields can be found in Table 2. The data extraction form was piloted, modified (where necessary) and reviewers' responses calibrated on the basis of two pre-identified studies (one modelling study and one non-model based paper). The data extracted will be analysed in a narrative/descriptive manner focusing on the methods, results and quality of studies included with the aim of identifying gaps in the evidence, areas of strength and areas in need of methodological improvement.

If the necessary data are available, the results will be discussed as subsets for different age groups (e.g. child/adult/elderly) and/or different skin disease severities and/or world regions and/or health care settings.

Quality assessment and data presentation

Two reviewers will independently evaluate the quality of included studies in order to assess the risk of bias. Studies will be assessed using a published checklist based on a modified version of the Consolidated Health Economic Evaluation Reporting

Standards (CHEERS) framework (Husereau et al, 2013) (see Table 3). In addition, model based economic evaluations will also be assessed using the Phillips criterion (Phillips et al, 2004, 2006) (see Table 4 for extraction table). Any discrepancies will be discussed and resolved by a third reviewer. These evaluations will be included in any publication as supplementary material.

Methodological variation between studies is likely to prevent a pooling of economic data in the form of a meta-analysis and therefore, results of the studies will be presented and discussed in a qualitative manner according to study type.

DISCUSSION

This systematic review will provide a comprehensive assessment of the type and quality of economic research used in the evaluation of interventions to prevent and treat eczema. The results of the review are likely to be written up in multiple publications, one focusing on an overview of the state of the art with additional papers focusing in more detail on particular methodologically aspects (for instance, the methods used in modelling studies). The review will report the range of cost effectiveness estimates found for interventions to prevent and treat atopic eczema, which may be useful in informing clinicians and decision makers about the relative value of different interventions for eczema and enable the value of eczema interventions to be compared with the cost effectiveness for other interventions in other disease areas. That is, it may help decision makers, on the basis of current information (if sufficient), to be able to answer questions about how to allocate limited resources between eczema and other disease areas and once allocated to eczema how to use those limited resources efficiently to maximise outcomes from eczema care. The

review will also be of interest to methodologists interested in the range and quality of economic studies in this clinical field. Finally this systematic review will help identify gaps in the current evidence base surrounding the economics of eczema to inform further research efforts in this area.

Abbreviations

CHEERS: Consolidated Health Economic Evaluation Reporting Standards; GP: General Practitioner; GREAT: Global Resource for Eczema Trials; HQoL: Health-related quality of life; ICER: Incremental Cost-Effectiveness Ratio; JLA: James Lind Alliance; NA: Not applicable; NHS: National Health Service; NICE: National Institute of Health and Care Excellence; PSP: Priority Setting Partnership; QALYs: Quality-Adjusted Life Years; UK: United Kingdom.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

TS conceptualised the research plan for the proposed systematic review and wrote the manuscript. EM and CM contributed to the writing of the manuscript. NL provided expertise on eczema. All authors reviewed the manuscript for important intellectual content and approved the final manuscript. TS is the guarantor.

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