

The treatment of severe atopic eczema trial (TREAT)

Submission date 09/03/2016	Recruitment status No longer recruiting	☒ Prospectively registered ☒ Protocol
Registration date 09/03/2016	Overall study status Completed	☐ Statistical analysis plan ☒ Results
Last Edited 29/10/2025	Condition category Skin and Connective Tissue Diseases	☐ Individual participant data

Plain English summary of protocol

Background and study aims

Eczema, also known as dermatitis, is a long-term medical condition which causes the skin to become dry, itchy and inflamed (swollen and red). Atopic eczema (AE) is the most common type of eczema, particularly in children. It can appear anywhere on the body, but it is usually found on the face, trunk (chest and back) and around the inside of the elbows or knees. This type of eczema is called "atopic" because sufferers are more sensitive to allergens (substances which can cause an allergic reaction). The exact cause of AE is not fully understood, but it is thought that their skin does not produce as many protective oils as it should do and so the skin loses water easily. This means that the protective barrier of the skin is not as good as it should be, and so it is more vulnerable to potential irritants. When the AE symptoms are particularly severe, it may be necessary to apply skin creams containing corticosteroids (powerful anti-inflammatory medicine). Although this type of treatment is generally effective, many children do not feel that it makes any difference to their condition. The aim of this study is to compare the short- and long-term effectiveness and safety of the immunosuppressive drugs methotrexate and ciclosporin for the treatment of severe atopic eczema in children.

Who can participate?

Children aged between 2 and 16 who have severe atopic eczema and have not responded well to previous corticosteroid skin cream treatments.

What does the study involve?

Participants are randomly allocated to one of two groups. Group 1 participants are treated with ciclosporin for 9 months. Group 2 participants are treated with methotrexate for 9 months. Participants in both groups are followed-up for another 6 months to assess the short- and long-term effectiveness and safety of the drugs.

What are the possible benefits and risks of participating?

Not provided at time of registration

Where is the study run from?

Medicines for Children Clinical Trials Unit, University of Liverpool (UK)

When is the study starting and how long is it expected to run for?
May 2016 to April 2019

Who is funding the study?
National Institute for Health Research (UK)

Who is the main contact?
Miss Farhiya Ashoor

Contact information

Type(s)
Public

Contact name
Miss Farhiya Ashoor

Contact details
University of Liverpool
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Additional identifiers

Clinical Trials Information System (CTIS)
2015-002013-29

Protocol serial number
20707

Study information

Scientific Title
A randomised controlled trial assessing the effectiveness, safety and cost-effectiveness of methotrexate versus ciclosporin in the treatment of severe atopic eczema in children: The TReatment of Severe Atopic Eczema Trial (TREAT)

Acronym
TREAT

Study objectives
The aim of this study is to compare the short- and long-term effectiveness and the safety profile of methotrexate vs ciclosporin in the treatment of severe atopic eczema in children.

Ethics approval required

Old ethics approval format

Ethics approval(s)

East of England: Cambridge central, 16/01/2016, ref: 15/EE/0328

Primary study design

Interventional

Study design

Multi-centre randomised parallel trial

Study type(s)

Treatment

Health condition(s) or problem(s) studied

Topic: Children, Dermatology; Subtopic: Children (all Diagnoses), Dermatology (Skin); Disease: All Diseases, Dermatology

Interventions

Participants are randomly allocated to one of two groups.

Group 1: Participants are treated with ciclosporin (Brand: Neoral) for 9 months.

Group 2: Participants are treated with methotrexate (any brand with marketing authorisation within EEA) for 9 months.

Participants in both groups are followed-up for another 6 months to assess short- and long-term effectiveness and the safety profile of both drugs.

Intervention Type

Drug

Phase

Not Applicable

Drug/device/biological/vaccine name(s)

Ciclosporin, methotrexate

Primary outcome(s)

1. Atopic eczema severity is measured using the o-SCORAD index at baseline and 12 weeks
2. Disease remission (time to first significant flare) is measured using the o-SCORAD index during the 24 weeks after treatment cessation

Key secondary outcome(s)

1. Atopic eczema severity is measured using the Eczema Area & Severity Index (EASI), Investigator Global Assessment (IGA), and Patient orientated Eczema Measure (POEM) scores at baseline, 12, 36, 48, and 60 weeks and using the o-SCORAD at 36, 48 and 60 weeks
2. Number of flares in each study arm as well as the proportion of children who re-flared during the 24 weeks after treatment cessation
3. Quality of life is measured using the Children's Dermatology Life Quality Index (CDLQI)/Infant's Dermatitis Quality of Life index (IDQOL) & Dermatitis Family Impact questionnaire (DFI) scores at baseline, 12, 36, 48, and 60 weeks
4. Proportion of participants achieving 50% improvement in the o-SCORAD and EASI index is

assessed at 12, 36, 48, and 60 weeks

5. Proportion of participants who withdraw from treatment because of adverse events

6. Cost-effectiveness of treatment based on utility is measured using the CHU-9D

7. Immuno-metabolic effects of MTX and CyA, especially in relation to markers of glycolytic activation and T cell cytokine signature, is measured at baseline, during treatment and up to 24 weeks after completion of treatment

8. Drug side effects/toxicity profiles

9. Association between MTX polyglutamate and CyA trough levels and reduction in atopic eczema severity as well as drug-related side effects

10. Impact of FLG genotype (yes/no) on reduction in atopic eczema severity

Completion date

31/07/2020

Eligibility

Key inclusion criteria

1. Written informed consent for study participation obtained from the patient or parents/legal guardian, with assent as appropriate by the patient, depending on the level of understanding

2. Aged 2-16 years at the time of the screening and randomisation visit

3. Diagnosis of severe recalcitrant atopic eczema

4. History of inadequate clinical response (in the opinion of the treating clinician) to mild to potent topical corticosteroids

5. An objective (o)-SCORAD severity score of at least 30

6. Participants must live within travelling distance of the recruiting centre

7. Females of childbearing potential, who are sexually active, must commit to consistent and correct use of an acceptable method of contraception for the duration of the trial and for 3 months after the last dose of study drug

8. Willingness to comply with study requirements

9. Ability to swallow tablets/capsules

10. Baseline visit within 2 weeks of the screening visit

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Child

Lower age limit

2 Years

Upper age limit

16 Years

Sex

All

Total final enrolment

103

Key exclusion criteria

1. Serious underlying medical condition which in the opinion of the Investigator would compromise the safety of the patient
2. Pregnant or nursing (lactating) females, where pregnancy is defined as the state of a female after conception and until the termination of gestation, confirmed by a positive hCG laboratory test
3. Any active and/or chronic infection at screening or baseline (randomisation) visit that, based on the investigator's clinical assessment, makes the subject an unsuitable candidate for the study
4. Presence of moderate to severe impaired renal function as indicated by clinically significantly abnormal creatinine ($\geq 1.5 \times$ upper normal limit (ULN) for age and sex) or eGFR $<60\text{ml/min/1.73m}^2$ at screening visit*
5. Clinical evidence of liver disease or liver injury at screening visit as indicated by abnormal liver function tests such as AST, ALT, GGT, alkaline phosphatase, or serum bilirubin (must not exceed $1.5 \times$ the upper limit value of the normal range for age and sex)
6. Total WBC count $<3 \times 10^9/\text{L}$, or platelets $<150 \times 10^9/\text{L}$ or neutrophils $<1.5 \times 10^9/\text{L}$ or haemoglobin $<8.5 \text{ g/dL}$ at screening visit
7. Blood pressure values $> 95\text{th}$ percentile for age and sex at screening and baseline visit
8. Received systemic cortico-steroids within 14 days prior to screening visit and 28 days of baseline visit
9. Received phototherapy within 4 weeks prior to screening visit and 6 weeks of the baseline visit
10. Previous exposure to any biologic agents or systemic immuno-suppressive therapy, except for oral corticosteroids (CS) for acute flare management
11. Concomitant use of disease-modifying and/or immunosuppressive drugs
12. Received live vaccines within 4 weeks prior to baseline visit
13. Currently participating in a conflicting study or participation in a clinical study involving a medicinal product in the last 28 days or less than 5 half-lives of the medicinal product prior to the screening visit
14. Known hypersensitivity to methotrexate or ciclosporin products
15. Insufficient understanding of the trial

*Formula for measuring eGFR = height (cm) $\times 40$ / Plasma creatinine (micromol/l)

Date of first enrolment

11/05/2016

Date of final enrolment

31/01/2019

Locations

Countries of recruitment

United Kingdom

England

Study participating centre

University of Liverpool
Medicines for Children Clinical Trials Unit
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Sponsor information

Organisation

King's College London (UK)

ROR

<https://ror.org/0220mzb33>

Funder(s)

Funder type

Government

Funder Name

National Institute for Health Research

Alternative Name(s)

National Institute for Health Research, NIHR Research, NIHRresearch, NIHR - National Institute for Health Research, NIHR (The National Institute for Health and Care Research), NIHR

Funding Body Type

Government organisation

Funding Body Subtype

National government

Location

United Kingdom

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary

Data sharing statement to be made available at a later date

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		16/11/2023	20/11/2023	Yes	No
Protocol article		01/12/2018	11/07/2019	Yes	No
HRA research summary			28/06/2023	No	No
Other publications	Secondary analysis	24/07/2025	28/07/2025	Yes	No
Other publications	Immunological study	27/10/2025	29/10/2025	Yes	No