

Different corticosteroid induction regimens in children and young people with juvenile idiopathic arthritis: the SIRJIA mixed-methods feasibility study

Ashley P Jones,¹ Dannii Clayton,¹ Gloria Nkhoma,¹
Frances C Sherratt,² Matthew Peak,³
Simon R Stones,⁴ Louise Roper,² Bridget Young,²
Flora McErlane,^{5,6} Tracy Moitt,¹
Athimalaipet V Ramanan,⁷ Helen E Foster,^{5,6}
Paula R Williamson,¹ Samundeeswari Deepak,⁸
Michael W Beresford⁹ and Eileen M Baidam^{3*}

¹Liverpool Clinical Trials Centre, University of Liverpool, a member of the Liverpool Health Partners, Liverpool, UK

²School of Psychology, University of Liverpool, Liverpool, UK

³Alder Hey Children's NHS Foundation Trust, a member of the Liverpool Health Partners, Liverpool, UK

⁴School of Healthcare, University of Leeds, Leeds, UK

⁵Paediatric Rheumatology, Great North Children's Hospital, Newcastle Upon Tyne Hospitals NHS Foundation Trust, Newcastle Upon Tyne, UK

⁶Institute of Cellular Medicine, Newcastle University, Newcastle Upon Tyne, UK

⁷Bristol Royal Hospital for Children, University Hospitals Bristol and Weston NHS Foundation Trust, Bristol, UK

⁸Paediatric Rheumatology, Nottingham Children's Hospital, Queen's Medical Centre, Nottingham, UK

⁹Faculty of Health and Life Science, University of Liverpool and Alder Hey Children's NHS Foundation Trust, members of Liverpool Health Partners, Liverpool, UK

*Corresponding author eileen.baidam@alderhey.nhs.uk

Declared competing interests of authors: Athimalaipet V Ramanan has received speaker fees/honoraria/consulting fees from Abbvie Inc. (North Chicago, IL, USA), Union Chimique Belge (Brussels, Belgium), Eli Lilly and Company (Indianapolis, IN, USA), Novartis (Basel, Switzerland), Roche Holding AG (Basel, Switzerland) and Bristol-Myers Squibb (New York, NY, USA). Paula R Williamson reports grants from the National Institute for Health Research (NIHR) Health Technology Assessment programme outside the submitted work and involvement with a clinical trials unit funded by NIHR.

Published July 2020

DOI: 10.3310/hta24360

Plain English summary

The SIRJIA mixed-methods feasibility study

Health Technology Assessment 2020; Vol. 24: No. 36

DOI: [10.3310/hta24360](https://doi.org/10.3310/hta24360)

NIHR Journals Library www.journalslibrary.nihr.ac.uk

Plain English summary

About juvenile idiopathic arthritis

Juvenile idiopathic arthritis refers to a group of conditions that cause inflammation and damage of the joints, starting in children and young people aged < 16 years. Treatments include anti-inflammatory medicines, disease-modifying/biologic medicines and corticosteroids. Young people often require corticosteroids at the start of their treatment, or in a flare with worsening inflammation, to get their juvenile idiopathic arthritis under control. A short course of corticosteroids can help and can be given by injection into the joint, through a drip into a vein, by injection into the muscle or in the form of tablets or liquid to be taken orally. Although they have been used for decades, there is no research to show the best way(s) of giving corticosteroids.

Study aims

The study aimed to (1) agree on what corticosteroid treatments to compare in a treatment trial and the best way to measure changes in juvenile idiopathic arthritis to evaluate a quick-acting treatment and (2) find out if there are enough young people with active juvenile idiopathic arthritis in the UK to be included in such a study.

Methods

Published research on corticosteroids in juvenile idiopathic arthritis was reviewed. Health-care professionals were asked how they choose which corticosteroids to use and which method of administration to use. Interviews were carried out with children and young people and their families to (1) consider the design of a study comparing corticosteroid routes, (2) identify outcomes important to them and (3) determine whether or not they would be willing to take part in a future study. A 3-month feasibility study was carried out to collect details of children and young people with active juvenile idiopathic arthritis before and after corticosteroid treatment to measure improvements in juvenile idiopathic arthritis activity, and to see whether or not a larger study would be possible.

Findings

This study showed that corticosteroids are used in different ways across the UK. The views of children, young people and their families must be taken into account when designing a future study. This study calculated the number of young people who would be needed to take part in the future, showing that it would be possible to do a larger study that compared different corticosteroid treatments, which would help everyone to understand the best way to use corticosteroids.

ISSN 1366-5278 (Print)

ISSN 2046-4924 (Online)

Impact factor: 3.370

Health Technology Assessment is indexed in MEDLINE, CINAHL, EMBASE, the Cochrane Library and Clarivate Analytics Science Citation Index.

This journal is a member of and subscribes to the principles of the Committee on Publication Ethics (COPE) (www.publicationethics.org/).

Editorial contact: journals.library@nihr.ac.uk

The full HTA archive is freely available to view online at www.journalslibrary.nihr.ac.uk/hta. Print-on-demand copies can be purchased from the report pages of the NIHR Journals Library website: www.journalslibrary.nihr.ac.uk

Criteria for inclusion in the *Health Technology Assessment* journal

Reports are published in *Health Technology Assessment* (HTA) if (1) they have resulted from work for the HTA programme, and (2) they are of a sufficiently high scientific quality as assessed by the reviewers and editors.

Reviews in *Health Technology Assessment* are termed 'systematic' when the account of the search appraisal and synthesis methods (to minimise biases and random errors) would, in theory, permit the replication of the review by others.

HTA programme

Health Technology Assessment (HTA) research is undertaken where some evidence already exists to show that a technology can be effective and this needs to be compared to the current standard intervention to see which works best. Research can evaluate any intervention used in the treatment, prevention or diagnosis of disease, provided the study outcomes lead to findings that have the potential to be of direct benefit to NHS patients. Technologies in this context mean any method used to promote health; prevent and treat disease; and improve rehabilitation or long-term care. They are not confined to new drugs and include any intervention used in the treatment, prevention or diagnosis of disease.

The journal is indexed in NHS Evidence via its abstracts included in MEDLINE and its Technology Assessment Reports inform National Institute for Health and Care Excellence (NICE) guidance. HTA research is also an important source of evidence for National Screening Committee (NSC) policy decisions.

This report

The research reported in this issue of the journal was funded by the HTA programme as project number 14/167/01. The contractual start date was in January 2016. The draft report began editorial review in May 2019 and was accepted for publication in December 2019. The authors have been wholly responsible for all data collection, analysis and interpretation, and for writing up their work. The HTA editors and publisher have tried to ensure the accuracy of the authors' report and would like to thank the reviewers for their constructive comments on the draft document. However, they do not accept liability for damages or losses arising from material published in this report.

This report presents independent research funded by the National Institute for Health Research (NIHR). The views and opinions expressed by authors in this publication are those of the authors and do not necessarily reflect those of the NHS, the NIHR, NETSCC, the HTA programme or the Department of Health and Social Care. If there are verbatim quotations included in this publication the views and opinions expressed by the interviewees are those of the interviewees and do not necessarily reflect those of the authors, those of the NHS, the NIHR, NETSCC, the HTA programme or the Department of Health and Social Care.

© Queen's Printer and Controller of HMSO 2020. This work was produced by Jones *et al.* under the terms of a commissioning contract issued by the Secretary of State for Health and Social Care. This issue may be freely reproduced for the purposes of private research and study and extracts (or indeed, the full report) may be included in professional journals provided that suitable acknowledgement is made and the reproduction is not associated with any form of advertising. Applications for commercial reproduction should be addressed to: NIHR Journals Library, National Institute for Health Research, Evaluation, Trials and Studies Coordinating Centre, Alpha House, University of Southampton Science Park, Southampton SO16 7NS, UK.

Published by the NIHR Journals Library (www.journalslibrary.nihr.ac.uk), produced by Prepress Projects Ltd, Perth, Scotland (www.prepress-projects.co.uk).

Editor-in-Chief of *Health Technology Assessment* and NIHR Journals Library

Professor Ken Stein Professor of Public Health, University of Exeter Medical School, UK

NIHR Journals Library Editors

Professor John Powell Chair of HTA and EME Editorial Board and Editor-in-Chief of HTA and EME journals. Consultant Clinical Adviser, National Institute for Health and Care Excellence (NICE), UK, and Senior Clinical Researcher, Nuffield Department of Primary Care Health Sciences, University of Oxford, UK

Professor Andrée Le May Chair of NIHR Journals Library Editorial Group (HS&DR, PGfAR, PHR journals) and Editor-in-Chief of HS&DR, PGfAR, PHR journals

Professor Matthias Beck Professor of Management, Cork University Business School, Department of Management and Marketing, University College Cork, Ireland

Dr Tessa Crilly Director, Crystal Blue Consulting Ltd, UK

Dr Eugenia Cronin Senior Scientific Advisor, Wessex Institute, UK

Dr Peter Davidson Consultant Advisor, Wessex Institute, University of Southampton, UK

Ms Tara Lamont Director, NIHR Dissemination Centre, UK

Dr Catriona McDaid Senior Research Fellow, York Trials Unit, Department of Health Sciences, University of York, UK

Professor William McGuire Professor of Child Health, Hull York Medical School, University of York, UK

Professor Geoffrey Meads Professor of Wellbeing Research, University of Winchester, UK

Professor John Norrie Chair in Medical Statistics, University of Edinburgh, UK

Professor James Raftery Professor of Health Technology Assessment, Wessex Institute, Faculty of Medicine, University of Southampton, UK

Dr Rob Riemsma Reviews Manager, Kleijnen Systematic Reviews Ltd, UK

Professor Helen Roberts Professor of Child Health Research, UCL Great Ormond Street Institute of Child Health, UK

Professor Jonathan Ross Professor of Sexual Health and HIV, University Hospital Birmingham, UK

Professor Helen Snooks Professor of Health Services Research, Institute of Life Science, College of Medicine, Swansea University, UK

Professor Ken Stein Professor of Public Health, University of Exeter Medical School, UK

Professor Jim Thornton Professor of Obstetrics and Gynaecology, Faculty of Medicine and Health Sciences, University of Nottingham, UK

Professor Martin Underwood Warwick Clinical Trials Unit, Warwick Medical School, University of Warwick, UK

Please visit the website for a list of editors: www.journalslibrary.nihr.ac.uk/about/editors

Editorial contact: journals.library@nihr.ac.uk