Steroids for pneumonia in adults in Kenya

Submission date 26/10/2022	Recruitment status No longer recruiting	Prospectively registeredProtocol
Registration date	Overall study status	Statistical analysis plan
25/11/2022	Completed	Results
Last Edited	Condition category	☐ Individual participant data
24/06/2025	Respiratory	[X] Record updated in last year

Plain English summary of protocol

Background and study aims

We don't know whether the addition of steroids (a class of medications that reduce the body's reaction to injury or infection) to standard treatment in patients with pneumonia in Kenya is beneficial or not. Trials in patients with COVID-19 have shown that the addition of steroids reduces mortality. However, in Kenya most patients with pneumonia will not be tested for COVID-19 due to a lack of resources. It is likely that clinicians in Kenya will treat all patients with pneumonia using steroids, in the belief that this strategy may be beneficial, based on data from preceding trials. This trial aims to determine whether such a strategy is beneficial to patients who are either negative for COVID-19 or whose COVID-19 status is not known.

In this randomized clinical trial, we would like to determine if the addition of steroids to the treatment regimen of patients with pneumonia in Kenyan hospitals is associated with reduced risk of death in the 30 days after admission to hospital. We will also study the perceptions of patients on the disease process and its treatment and determine if there are any specific biological features that influence the response to treatment in some patients.

Who can participate?

Adult patients admitted to hospital with a diagnosis of pneumonia, who are negative for COVID-19 or whose COVID-19 status is not yet known, will be eligible to participate.

What does the study involve?

The consenting process will take about 15-30 minutes. We will use a random sequence generated by computer to randomly select approximately half of all the patients in the study, who will in addition to the antibiotics, also receive low-dose steroids. The attending clinicians will prescribe the standard antibiotics for pneumonia according to Kenyan clinical guidelines for all patients. The duration of treatment with steroids will be for 10 days, in keeping with recent international trials. At the end of 30 days from entry into the study, we will make phone calls to all of the study participants in order to determine if there is a difference in the proportions of patients that are alive between the two study groups. In addition, 100 randomly selected patients will also have their blood drawn at admission and after 24,48, and 72 hours of treatment for tests to examine factors associated with their response to the treatments.

What are the possible benefits and risks of participating?

There are no direct benefits to participating in the study. There is a benefit to society by helping

us quickly find out if the addition of steroids to treat patients with pneumonia is beneficial or not. Short-term use of low-dose steroids is generally safe but may lead to increased blood sugar in some patients. There might also be a small increased risk of other infections. Patients will be closely monitored for any complications and the study team will ensure that these are managed appropriately should they arise. For the ~100 participants who will have their blood drawn, this may be associated with slight pain and bruising which will resolve in a few days. There is also a small risk of local infection, which will be minimized by the use of sterile equipment and trained clinical staff. The blood sampling will take an additional 15-30 minutes overall of the patient's time, but this will be during the time that they are admitted to the ward. There are no costs to be incurred by patients participating in the study.

Where is the study run from?

The study will take place at multiple health facilities in Kenya that participate in the Clinical Information Network (CIN), a collaboration that aims to improve the collection of inpatient information for use in improving care. The study coordinators are in Kilifi and Nairobi, Kenya. At each of the participating hospitals, there will be a site lead and a designated study clinician.

When is the study starting and how long is it expected to run for? January 2022 to September 2024

Who is funding the study?

This study is funded by the Wellcome Trust through the KEMRI-Wellcome Trust Research Programme's core funding.

Who is the main contact?

The study's principal investigator, Dr Anthony Oliwa Etyang, is the main contact. He can be contacted at aetyang@kemri-wellcome.org

Contact information

Type(s)

Principal Investigator

Contact name

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Public

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Additional identifiers

EudraCT/CTIS number

Nil known

IRAS number

ClinicalTrials.gov number

Nil known

Secondary identifying numbers

PACTR202111481740832

Study information

Scientific Title

A pragmatic randomized controlled trial of standard care versus steroids plus standard care for treatment of pneumonia in adults admitted to Kenyan hospitals

Acronym

SONIA

Study objectives

The null hypothesis is that there is no difference in mortality at 30 days after admission between patients randomized to receive low-dose steroids in addition to standard of care for pneumonia compared to those receiving standard of care treatment only

Ethics approval required

Old ethics approval format

Ethics approval(s)

- 1. Approved 21/01/2022, Kenya Medical Research Institute Scientific Ethics Review Unit (KEMRI-SERU, P.O. Box 54840-00200, Nairobi, Kenya; +254 2722541; info@kemri.org), ref: SERU 4319 2. Approved 07/03/2022, Oxford Tropical Research Ethics Committee (OxTREC, University of Oxford, Research Services, Research Governance Ethics & Assurance, Boundary Brook House, Churchill Drive, Oxford, OX3 7GB, UK;+44 (0) 1865 282106; oxtrec@admin.ox.ac.uk), ref: OxTREC 4-22
- 3. Approved 06/04/2022, Pharmacy and Poisons Board of Kenya (PPB, P.O. Box 27663 00506, Lenana Road, Nairobi, Kenya; no telephone number provided; info@pharmacyboardkenya.org), ref: PPB/ECCT 21/11/02/2022(103)
- 4. Approved 08/04/2022, National Commission for Science, Technology and Innovation (NACOSTI, P. O. Box 30623, 00100, off Waiyaki Way, Upper Kabete, Nairobi, Kenya; +254713 788 787; info@nacosti.go.ke), ref: NACOSTI/P/22/16486

Study design

Pragmatic open-label parallel randomized controlled clinical trial

Primary study design

Interventional

Secondary study design

Randomised controlled trial

Study setting(s)

Hospital

Study type(s)

Treatment

Participant information sheet

Not available in web format, please use contact details to request a participant information sheet

Health condition(s) or problem(s) studied

Treatment of community acquired pneumonia in adults

Interventions

We will conduct a pragmatic open label parallel randomized clinical trial. Eligible participants will be recruited from the in-patient adult medical wards of the participating hospitals. Patients admitted to the general wards as well as the High Dependency Units (HDU) and Intensive Care Units (ICU) will be eligible to join the trial and will be identified by the attending clinician and a study clinician.

Participants enrolled into the trial will be randomized 1:1 to either receive standard of care for pneumonia or standard of care plus a 10-day course of the study steroids. Equivalent doses of

either of six steroids will be used as the trial intervention. These are: Dexamethasone 6mg, Betamethasone 5mg, Hydrocortisone 160mg, Methylprednisone 30mg, Prednisolone 50mg and Prednisone 50mg.

A subset of all recruited participants, about 50 per trial arm, will be randomized to the immunology sub-study and will have a blood draw at four timepoints during their participation. For these participants, a 10 ml blood sample will be collected at enrollment, 24, 48 and 72 hours after enrollment for the trial's immunology sub study.

All participants will be followed up to their 30th day after enrollment to determine their vital status. The median duration of hospital admission for patients with community acquired pneumonia(CAP) in the participating hospitals is 4 days, therefore having the primary outcome ascertained at 30 days is unlikely to result in misclassification of patients where some are recorded as being alive only to die a few days later.

Being a pragmatic trial, the study will not interfere with any procedure, investigations, or treatments that the attending clinicians administer to participants. However, all treatments received will be recorded.

Intervention Type

Drug

Phase

Phase IV

Drug/device/biological/vaccine name(s)

Betamethasone 5mg, hydrocortisone 160mg, methylprednisone 30mg, prednisolone 50mg, prednisone 50mg, dexamethasone 6mg

Primary outcome measure

Mortality recorded as 'dead or alive' at 30 days after randomization measured using patient records

Secondary outcome measures

Measured using patient records:

- 1. Mortality recorded as 'dead or alive' at 7,14- and 21-days following randomization
- 2. In-hospital mortality compared to mortality after discharge from hospital (up to 30 days post randomization)
- 3. Time to death measured in days following randomization
- 4. Correlation of pre-existing and treatment induced changes in the participants' immune and metabolic profiles with study outcomes at baseline, 24 hours, 48 hours and 72 hours

Overall study start date

21/01/2022

Completion date

30/09/2024

Eligibility

Key inclusion criteria

- 1. Adults aged 18 years or over
- 2. Admitted to hospital with a diagnosis of community-acquired pneumonia. Pneumonia will be based on a clinical definition as follows: the presence of at least 2 of the following signs and symptoms for less than 14 days: cough, fever, dyspnea, hemoptysis, chest pain or crackles on chest examination
- 3. Admitted to hospital within the previous 48 hours in this current illness
- 4. Provides written informed consent

Participant type(s)

Patient

Age group

Adult

Lower age limit

18 Years

Sex

Both

Target number of participants

2,180

Total final enrolment

2180

Key exclusion criteria

- 1. Diagnosis of COVID-19 confirmed via polymerase chain reaction (PCR) of nasopharyngeal /oropharyngeal (NP/OP) swabs or antigen rapid diagnostic tests (RDTs) done at the hospital. This criterion only applies if the test result is known at the point of enrollment
- 2. Hospital acquired pneumonia- defined as pneumonia in a patient who has been in hospital for >48 hours who did not have the symptoms at admission
- 3. Patients who in the opinion of the attending clinician, require to be treated with steroids.
- 4. Known or suspected condition which in the opinion of attending clinician requires treatment with steroids, including but not limited to chronic obstructive pulmonary disease, asthma, adrenal insufficiency, Pneumocystis Jirovecii pneumonia (PCP)
- 5. If the clinician strongly suspects COVID-19 and wants to provide steroids to the patient because of this suspicion, then the patient will be excluded from the trial
- 6. Pregnancy or breast feeding
- 7. Any contraindication to steroid administration

Date of first enrolment

18/04/2022

Date of final enrolment

30/09/2024

Locations

Countries of recruitment

Study participating centre KEMRI-Wellcome Trust Research Programme (KWTRP) Centre for Geographic Medical Research – Coast (CGMRC)

PO Box 230 - 80108 Kilifi Kenya 80108

Study participating centre Kiambu Level Five Hospital

P.O BOX 39 - 00900 Kiambu Kenya 00900

Study participating centre Machakos Level Five Hospital

P.O BOX 19 – 90100 Machakos Kenya 90100

Study participating centre Kitale County Referral Hospital

P.O BOX 98-30200 Kitale Kenya 30200

Study participating centre Naivasha Level Five Hospital

P.O BOX 141- 20117 Naivasha Kenya 20117

Study participating centre

Bungoma County Referral Hospital.

P.O Box 14 - 50200 Bungoma Kenya 50200

Study participating centre Kisumu County Hospital

P.O BOX 1818 – 40100 Kisumu Kenya 40100

Study participating centre Kakamega County General Hospital

P.O BOX 15 - 50100 Kakamega Kenya 50100

Study participating centre Busia County Referral Hospital

P.O Box 87 – 50400 Busia Kenya 50400

Study participating centre Mama Lucy Kibaki Hospital

P.O BOX 1278 - 00515 Nairobi Kenya 00515

Study participating centre Moi Teaching and Referral Hospital

P.O BOX 3 – 30100 Eldoret Kenya 30100

Study participating centre Kenyatta University Teaching and Referral Hospital

P.O BOX 7674 - 00100 Nairobi Kenya 00100

Study participating centre Coast General Teaching and Referral Hospital

P.O BOX 90231 - 80100 Mombasa Kenya 80100

Study participating centre Kilifi County Hospital

P.O BOX 09 - 80108 Kilifi Kenya 80108

Study participating centre Mbagathi County Hospital

P.O BOX 40205 – 00200 Nairobi Kenya 00200

Study participating centre Kisii Teaching and Referral Hospital.

P.O BOX 92 – 40200 Kisii Kenya 40200

Study participating centre Jaramogi Oginga Odinga Teaching and Referral Hospital

P.O BOX 2738 - 40100

Kisumu

Study participating centre Kenyatta National Hospital P.O BOX 20723 - 00202

Nairobi Kenya 00202

Sponsor information

Organisation

University of Oxford

Sponsor details

Boundary Brook House Churchill Drive Oxford England United Kingdom OX3 7GB +44 (0) 1865 282106 oxtrec@admin.ox.ac.uk

Sponsor type

University/education

Website

http://www.ox.ac.uk/

ROR

https://ror.org/052gg0110

Funder(s)

Funder type

Charity

Funder Name

Wellcome Trust

Alternative Name(s)

Wellcome, WT

Funding Body Type

Private sector organisation

Funding Body Subtype

Trusts, charities, foundations (both public and private)

Location

United Kingdom

Results and Publications

Publication and dissemination plan

The results of the trial will be reported in a Clinical Study Report generated by the Sponsor, containing case report form (CRF) data, laboratory data and safety data. The Sponsor will register and disclose the existence of the results of the clinical trial on an international clinical trials registry in accordance with good practice. Individual participant identifiers will not be used in any publication of results.

Results will be published in an open access format, consistent with Good Publication Practices, the International Committee of Medical Journal Editors guidelines and funder requirements. The primary trial results will be published including all investigators meeting ICJME criteria as authors. Local investigators will take prominent roles in the primary trial results write-up. Secondary analyses will also be developed as part of KEMRI-CGMRC's commitment to capacity development to ensure that co-investigators have additional opportunities for individual scientific output.

Results will be disseminated to the Kenya Ministry of Health, the Kenya Medical Association, all of the participating hospitals and other relevant stakeholders e.g., the WHO. Results will also be disseminated locally in the areas where the study was conducted and participants will be invited to meetings to receive feedback on the trial outcomes.

Intention to publish date

30/04/2025

Individual participant data (IPD) sharing plan

The datasets generated and analysed during the current study will be available in a publicly available ('open access') repository or upon reasonable request, after the final study publication is published

Further details on data to be made available in an open access repository will be shared once the study is completed

IPD sharing plan summary

Stored in publicly available repository

Study outputs

Output type Details Date created Date added Peer reviewed? Patient-facing?

 Protocol (preprint)
 09/11/2022
 No

 Protocol article
 28/05/2025
 24/06/2025
 Yes

No

No