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Steroids for pneumonia in adults in Kenya

Submission date
26/10/2022

Recruitment status
No longer recruiting

Registration date
25/11/2022

Overall study status
Completed

Last Edited
30/10/2025

Condition category
Respiratory

[_] Prospectively registered
[X] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

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

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Additional identifiers

Protocol serial number
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

Primary study design
Interventional

Study design
Pragmatic open-label parallel randomized controlled clinical trial

Study type(s)
Treatment

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(s)
Mortality recorded as ‘dead or alive’ at 30 days after randomization measured using patient records

Key secondary outcome(s)
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

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

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 Years

Sex
All

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
Kenya

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
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00900

Study participating centre

Machakos Level Five Hospital
P.O BOX 19 – 90100
Machakos
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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
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20117

Study participating centre
Bungoma County Referral Hospital.
P.O Box 14 - 50200
Bungoma
Kenya
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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
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Study participating centre
Coast General Teaching and Referral Hospital
P.O BOX 90231 - 80100
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Study participating centre
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P.O BOX 09 - 80108
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Study participating centre
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P.O BOX 40205 – 00200
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Study participating centre
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Sponsor information

Organisation
University of Oxford

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

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?
Results article		29/10/2025	30/10/2025	Yes	No
Protocol article		28/05/2025	24/06/2025	Yes	No
Protocol (preprint)			09/11/2022	No	No