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Influenza vaccine response in children 6-59 months residing in malaria endemic area of Malawi

Submission date
19/10/2015

Recruitment status
No longer recruiting

Registration date
19/01/2016

Overall study status
Completed

Last Edited
09/09/2019

Condition category
Infections and Infestations

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[_] Results
[_] Individual participant data
[_] Record updated in last year

Plain English summary of protocol

Background and study aims
Influenza, also known as the flu, is caused by a common virus which attacks the nose, throat, sinuses and lungs (respiratory system). Sufferers usually also experience a high temperature (fever), aching muscles and tiredness, as their bodies work to fight the infection. Most people are able to recover from the flu within one or two weeks, as their immune systems are able to destroy the virus. However, in vulnerable people, such as the very young and those with pre-existing serious medical conditions, the flu can lead to serious complications and even death. There is growing evidence that influenza is responsible for increasing the rate of severe respiratory tract (lungs and airways) related disease and death in children under the age of five in sub-Saharan Africa (SS). This is an area in which malaria (a disease caused by infectious parasites spread through mosquito bites) is extremely common, and it is not known how vaccinating children against influenza (Inactivated Influenza Vaccine, IIV) would be affected by a malaria infection. The aim of this study is to look at the immune response to IIV in children with asymptomatic (no symptoms) malaria and children without malaria. The study will also look at whether the immune response to IIV in children living in areas with high transmission of malaria (high chance of becoming infected) is different to children living in areas with low transmission of malaria (low chance of becoming infected).

Who can participate?
Children aged between 6 and 59 months of age who live in villages in rural Malawi.

What does the study involve?
All study participants receive injections of the IIV vaccine at the start of the study and then 28 days later. All children are followed-up three days after receiving each injection in order to check for any signs of fever, reactions at the site of injection and any other negative reactions they may have had to the vaccine (adverse events). Children who have had adverse events (AE) are followed up until day seven, to make sure that the AE is resolved. The parents/guardians of the children are also asked to contact the study staff if the child becomes very ill or has a fever at any time in the study. Blood samples are taken on day 28 and 56, so that their immune responses to the IIV can be measured in the laboratory.

What are the possible benefits and risks of participating?
Participants may benefit from a lower chance of contracting influenza. Additionally, all participants are given first-line treatment for malaria and schistosomiasis (common diseases in the study area), as well as a bed net (to protect against malaria-carrying mosquitos) at the end of the study. There is a small risk that participants may experience a brief physical discomfort and /or fear when receiving the vaccine or having blood tests.

Where is the study run from?
30 rural villages in Chikhwawa District (Malawi)

When is the study starting and how long is it expected to run for?
June 2014 to July 2016

Who is funding the study?
Centers for Disease Control and Prevention (USA)

Who is the main contact?
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Additional identifiers

Protocol serial number
UoL001120 (University of Liverpool Sponsorship number)

Study information

Scientific Title
A non-randomized immunogenicity trial of World Health Organization (WHO) Pre-qualified Inactivated Influenza Vaccine (IIV) in children age 6 to 59 months residing in a malaria endemic area of Malawi

Acronym
FLUVAC

Study objectives
Experimental hypotheses:
1. The absolute proportion of children aged 6-59 months with a 4-fold rise in strain-specific HI titer from baseline or HI titer ≥1:40 (if baseline HI titer <1:10) following 2 doses of inactivated influenza vaccine is more than 15% lower in children with asymptomatic malaria parasitemia compared to children without malaria parasitemia at the time of vaccination.
2. The absolute proportion of children aged 6-59 months with a 4-fold rise in strain-specific HI titer from baseline or HI titer ≥1:40 (if baseline HI titer <1:10) following 2 doses with inactivated influenza vaccine is more than 15% lower in children living in an area of high malaria transmission intensity compared to children living in an area of low malaria transmission intensity.

Null hypotheses:
1. The absolute proportion of children aged 6-59 months with a 4-fold rise in strain-specific HI titer from baseline or HI titer ≥1:40 (if baseline HI titer <1:10) following 2 doses of inactivated influenza vaccine is not more than 15% lower in children with asymptomatic malaria parasitemia compared to children without malaria parasitemia at the time of vaccination.
2. The absolute proportion of children aged 6-59 months with a 4-fold rise in strain-specific HI titer from baseline or HI titer ≥1:40 (if baseline HI titer <1:10) following 2 doses of inactivated influenza vaccine is not more than 15% lower in children living in an area of high malaria transmission intensity compared to children living in an area of low malaria transmission intensity.

Ethics approval required
Old ethics approval format

Ethics approval(s)
National Health Sciences Research Committee (Malawi), 10/03/2015, ref: 1343

Study design
Single-centre community-based non-randomized prospective interventional immunogenicity trial

Primary study design
Interventional

Study type(s)
Prevention

Health condition(s) or problem(s) studied
Response to influenza vaccine of children with and without asymptomatic malaria parasitemia.

Interventions
The trial will enroll a total of 1300 children from approximately 30 rural villages in Chikhwawa District, in Southern Malawi, where each village has about 100-150 households . The study will enroll participants at a baseline visit, with two follow-up visits at Days 28 and 56. All study participants will receive IIV vaccine at days 0 and 28; participants' immunological response to the vaccine will be assessed at Days 28 and 56. Malaria parasitaemia will be assessed in participants at each study visit.
Study subjects will be followed up at Day 3 post-vaccination to assess fever, injection site reactions and other adverse events (AEs). Children with AEs at Day 3 will be followed up through Day 7 to ensure that the AE has resolved. Parents/guardians will be asked to contact study staff in the event of serious clinical events or fever in the study participant at any time throughout the study.

Intervention Type
Biological/Vaccine

Primary outcome(s)
Immunogenicity is measured using blood sampling at baseline (prior to immunisation) and at 28 and 56 days after the initial immunisation.

Key secondary outcome(s))
Safety of the immunisation is determined by recording the number and percentage of solicited and un-solicited AEs occurring within 7 days of vaccination as reported by parents/guardians in a diary card and at a check-up appointment on day 3 and day 31.

Completion date
01/02/2017

Eligibility

Key inclusion criteria
1. Aged 6 to 59 months
2. Resident in study village for the past 12 months (or since birth if less than 12 months old)
3. Is not currently enrolled in another intervention study
4. Parent/guardian provides informed consent by signature or thumb print

Participant type(s)
Healthy volunteer

Healthy volunteers allowed
No

Age group
Child

Lower age limit
6 months

Upper age limit
59 months

Sex
All

Key exclusion criteria
1. History of allergic reaction to any component of the study vaccines
2. History of allergic reaction to egg
3. History of bleeding disorders
4. History of Guillain-Barré Syndrome
5. Residence outside the study area or planning to relocate out in the 3 months following enrolment
6. Used immunosuppressive medication within 45 days of study entry (inhaled and topical corticosteroids permitted)
7. Received immunoglobulin or blood products within 45 days of study entry
8. Parent/guardian unable to give informed consent (for example due to mental disability)
9. Temperature 37.5°C or higher Axillary/38°C Oral or reported fever (prior 48 hours) on the day of vaccination
10. Acutely ill (respiratory symptoms, diarrhoea or vomiting within the past 24 hours)
11. Influenza vaccination in previous 12 months
12. Weigh less than 5 kg

Date of first enrolment
18/01/2016

Date of final enrolment
31/07/2016

Locations

Countries of recruitment
Malawi

Study participating centre
Chikwawa district
Malawi
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Sponsor information

Organisation
University of Liverpool

ROR
https://ror.org/04xs57h96

Funder(s)

Funder type
Government

Funder Name
Centers for Disease Control and Prevention

Alternative Name(s)
United States Centers for Disease Control and Prevention, Centers for Disease Control, U.S. Centers for Disease Control and Prevention, US Centers for Disease Control and Prevention, Centros para el Control y la Prevención de Enfermedades, CDC, U.S. CDC, USCDC

Funding Body Type
Government organisation

Funding Body Subtype
National government

Location
United States of America

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Available on request