

# High dose versus standard dose oseltamivir for the treatment of severe influenza and avian influenza

**Submission date**  
12/07/2007

**Recruitment status**  
No longer recruiting

☐ Prospectively registered

☐ Protocol

**Registration date**  
12/07/2007

**Overall study status**  
Completed

☐ Statistical analysis plan

☒ Results

**Last Edited**  
14/09/2017

**Condition category**  
Infections and Infestations

☐ Individual participant data

## Plain English summary of protocol

Not provided at time of registration

## Contact information

### Type(s)

Scientific

### Contact name

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## Additional identifiers

### ClinicalTrials.gov (NCT)

NCT00298233

### Protocol serial number

061330; USA FDA IND# 74,213

## Study information

**Scientific Title**

High dose versus standard dose oseltamivir for the treatment of severe influenza and avian influenza: a phase II double-blind, randomised clinical trial

**Acronym**

SEA001

**Study objectives**

Human influenza is a serious disease causing an estimated 500,000 - 1,000,000 deaths worldwide each year. In addition, there have been increasing numbers of cases of avian influenza in the last several years, which may pose a threat of a future pandemic with a novel influenza virus.

Oseltamivir is one therapeutic agent available for human influenza, and would be considered standard therapy for treatment of avian influenza. Both severe human influenza and avian influenza have a higher mortality than uncomplicated human influenza, have higher viral replication, shed larger amounts of virus, and shed virus longer. Oseltamivir has been shown to decrease viral replication and shedding in uncomplicated influenza, but similar studies have not been performed in severe human and avian influenza.

The primary purpose of this protocol is to evaluate high-dose oseltamivir (twice the standard dose) as compared to standard-dose oseltamivir in the treatment of severe human or avian influenza with the hypothesis that high-dose will decrease viral replication and shedding, and therefore may confer a clinical or survival advantage. This protocol will also attempt to define differences in the clinical manifestation, the relationship between antiviral plasma concentrations and viral dynamics, and pathogenesis of human and avian influenza, which may help to improve the treatment of these diseases.

**Ethics approval required**

Old ethics approval format

**Ethics approval(s)**

Oxford Tropical Research Ethics Committee (OXTREC), ref: 001-06

**Study design**

Phase II double-blind randomised clinical trial

**Primary study design**

Interventional

**Study type(s)**

Treatment

**Health condition(s) or problem(s) studied**

Influenza in birds, severe influenza

**Interventions**

Current Interventions as of 19/01/2011:

Study duration: four years or until 270 subjects in the severe influenza group are enrolled, whichever comes first.

This study will compare the standard dose of the anti-influenza drug Tamiflu with a higher dose of the drug to see if the higher dose is more effective in treating severe influenza or avian influenza (bird flu) infections. The National Institutes of Health (NIH) is one of several international sites for this study.

People 18 years of age and older with severe influenza infection requiring hospitalisation or with avian influenza infections may be eligible for this study. Candidates are screened with a nasal swab, throat swab and nasal wash to look for virus. For the nasal wash, a small amount of salt water is squirted in the nose and removed by suction.

Participants are randomly assigned to receive either the standard dose or higher dose of Tamiflu. They take the medication twice a day for 5 days. Patients who are still very ill at 5 days and meet certain conditions are given the medicine for another 5 days. Patients are admitted to the hospital, in isolation, for the duration of treatment. In addition to treatment, patients have the following tests and procedures:

1. Nose and throat swabs, nasal wash, rectal swab, blood and urine tests and chest x-ray before starting treatment
2. Blood draws on study days 1, 3, 5 and 7
3. Nose and throat swabs every day for the first 5 days and on days 10, 14 and 28
4. Rectal swabs every day for the first 5 days and on days 10, 14 and 28

Patients with bird flu are seen in the clinic at 2 and 6 months. A repeat blood test is done at 6 months.

Previous Study Duration:

Study duration: four years or until 300 subjects in the severe influenza group are enrolled, whichever comes first.

### **Intervention Type**

Drug

### **Phase**

Phase II

### **Drug/device/biological/vaccine name(s)**

Oseltamivir (Tamiflu)

### **Primary outcome(s)**

The primary objective is to compare the antiviral efficacy of standard and high-dose oseltamivir in the treatment of severe influenza infections as assessed by negative reverse transcriptase (RT)-PCR for viral RNA in nose and throat swabs at day 5.

### **Key secondary outcome(s)**

1. Compare the antiviral efficacy of standard and high-dose oseltamivir in the treatment of severe influenza infections as assessed by negative RT-PCR for viral Ribonucleic Acid (RNA) in nose and throat swabs at day 5 and day 7
2. Compare the antiviral efficacy of standard-dose versus high-dose oseltamivir in the treatment of severe human influenza infections as assessed by negative RT-PCR for viral RNA in nose and throat swabs at day 5
3. Compare the antiviral efficacy of standard-dose versus high-dose oseltamivir in the treatment of avian influenza infections as assessed by negative RT-PCR for viral RNA in nose and throat

swab at day 5

4. Compare the antiviral efficacy of standard-dose versus high-dose oseltamivir in the treatment of avian influenza infections as assessed by time to sustained negativity of RT-PCR and viral culture in any sample
5. Compare the tolerability of high-dose versus standard-dose oseltamivir as assessed by the incidence and duration of clinical symptoms and the number of serious and grade IV adverse events that are possibly or probably related to oseltamivir
6. Compare the frequency of clinical failure of high-dose versus standard-dose oseltamivir in the treatment of severe influenza and avian influenza at days 5 and 10
7. Develop a population pharmacokinetic model of oseltamivir phosphate and oseltamivir carboxylate absorption and disposition, and characterize the sources of variance in pharmacokinetic parameters
8. Assess the relationship between pharmacokinetic variables and measures of viral clearance
9. Assess viral replication dynamics (frequency, duration, and level of viral replication) in the upper and lower respiratory tract, gastrointestinal tract (feces), and blood (viremia) in the high-dose versus standard-dose oseltamivir cohorts, and stratified by avian and human influenza
10. Assess the frequency, genetic basis, and duration of antiviral resistance during and after therapy
11. Characterize the innate and adaptive immune responses with respect to avian and human influenza, severe and mild disease, and standard-dose versus high-dose oseltamivir cohorts
12. Assess the absorption and achievable blood levels of oseltamivir carboxylate in seriously ill hospitalised patients with lower respiratory tract disease
13. Determine possible host genetic factors predisposing to severe influenza

## **Completion date**

19/01/2010

## **Eligibility**

### **Key inclusion criteria**

1. Age greater than or equal to one year (National Institutes of Health [NIH] site specific: age greater than or equal to 18 years old)
2. Fever greater than or equal to 38.0 degrees Celsius
3. At least one respiratory symptom:
  - 3.1. Cough
  - 3.2. Dyspnea (shortness of breath)
  - 3.3. Sore throat
4. Illness (onset of fever, respiratory symptoms, or constitutional symptoms) began in the last seven days
5. Have evidence of severe respiratory disease from influenza or avian influenza as defined below (A or B):
  - A. Evidence of severe influenza infection:
    - a. Need for hospitalisation (as determined by investigator or clinician)
    - b. One of the following (all criteria as judged by the investigator):
      - i. New infiltrate on chest x-ray (or any infiltrate if no prior chest x-ray or not known)
      - ii. Severe tachypnea (defined as: respiratory rate greater than or equal to 30 for age greater than or equal to 12 years, rate greater than or equal to 40 for age 6 - 12 years, rate greater than or equal to 45 for age 3 - 6 years, rate greater than or equal to 50 for age 1 - 3 years)
      - iii. Severe dyspnea (unable to speak full sentences, or use of accessory respiratory muscles)
      - iv. Arterial oxygen saturation less than 92% on room air measured by trans-cutaneous method

AND

c. Positive diagnostic testing for influenza defined as:

d. Rapid influenza Ag positive (A or B)

e. Qualitative Reverse Transcriptase Polymerase Chain Reaction (RT-PCR) positive for influenza (any)

B. Evidence of avian influenza infection

a. Nasal wash, nasal swab, or throat swab that is RT-PCR positive for H5 influenza

AND

b. NIH site-specific

6. Willingness to have bloods stored

### **Participant type(s)**

Patient

### **Healthy volunteers allowed**

No

### **Age group**

Adult

### **Lower age limit**

18 years

### **Sex**

All

### **Key exclusion criteria**

1. Pregnancy or urine beta-human Chorionic Gonadotropin (beta-hCG) positive
2. Active breast feeding
3. Receipt of more than 72 hours of oseltamivir within the last week
4. Receipt of oseltamivir at higher than standard doses (75 mg twice daily [bid], or equivalent dose adjusted for age, weight and creatinine clearance) within the last 14 days or during this acute illness, whichever is longer
5. History of allergy or severe intolerance (as judged by the investigator) of oseltamivir
6. Alternate explanation for the clinical findings as determined by the investigator with the information immediately available
7. Creatinine (Cr) Clearance (estimated by serum Cr) of less than 10 ml/min

### **Date of first enrolment**

23/10/2006

### **Date of final enrolment**

19/01/2010

## **Locations**

### **Countries of recruitment**

United States of America

Viet Nam

**Study participating centre**

**OUCRU-VN**

Ho Chi Minh City

Viet Nam

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## Sponsor information

**Organisation**

National Institute of Allergy and Infectious Diseases (NIAID) (USA)

**ROR**

<https://ror.org/043z4tv69>

## Funder(s)

**Funder type**

Charity

**Funder Name**

Wellcome Trust (grant ref: 061330)

**Alternative Name(s)**

**Funding Body Type**

Private sector organisation

**Funding Body Subtype**

International organizations

**Location**

United Kingdom

## Results and Publications

Individual participant data (IPD) sharing plan

## IPD sharing plan summary

Not provided at time of registration

### Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Results article</a>	results	30/05/2013		Yes	No
<a href="#">Basic results</a>				No	No
<a href="#">Other publications</a>	case report	17/02/2005		Yes	No
<a href="#">Participant information sheet</a>	Participant information sheet	11/11/2025	11/11/2025	No	Yes