

# Thrombophilia in Pregnancy Prophylaxis Study: a multicentre, multinational, randomised controlled trial of prophylactic low molecular weight heparin in high-risk pregnant thrombophilic women

<b>Submission date</b> 19/06/2003	<b>Recruitment status</b> No longer recruiting	<input type="checkbox"/> Prospectively registered
		<input type="checkbox"/> Protocol
<b>Registration date</b> 07/08/2003	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan
		<input checked="" type="checkbox"/> Results
<b>Last Edited</b> 28/04/2015	<b>Condition category</b> Pregnancy and Childbirth	<input type="checkbox"/> Individual participant data

## Plain English summary of protocol

Not provided at time of registration

## Study website

<http://www.healthypregnancy.ca>

## Contact information

### Type(s)

Scientific

### Contact name

Dr Marc Rodger

### Contact details

The Ottawa Hospital, General Campus  
501 Smyth Road, Room W6120  
Ottawa  
Canada  
K1H 8L6

## Additional identifiers

EudraCT/CTIS number

IRAS number

**ClinicalTrials.gov number**

NCT00967382

**Secondary identifying numbers**

954E-CV9101-004; MCT-82205

## **Study information**

**Scientific Title**

Thrombophilia in Pregnancy Prophylaxis Study: a multicentre, multinational, randomised controlled trial of prophylactic low molecular weight heparin in high-risk pregnant thrombophilic women

**Acronym**

TIPPS

**Study objectives**

Study rationale:

Thrombophilias are disorders that result in a predisposition to develop venous thromboembolic events (VTEs). Thrombophilias are common in the general population. Recent evidence indicates that women with thrombophilia not only have an increased risk of VTEs during pregnancy, but also increased risk of pre-eclampsia, intrauterine growth restriction (IUGR), abruptio placentae and foetal loss. The management of thrombophilic women in pregnancy is controversial and antithrombotic prophylaxis may reduce the rate of complications in pregnancy and the rate of VTEs.

Phase II studies with low molecular weight heparin (LMWH) in pregnant women, for a variety of indications, suggest that there may be a benefit to their use in this high-risk group. However, to date there have been no controlled clinical trials using LMWH to prevent pre-eclampsia, IUGR or foetal loss.

The purpose of this study is to determine the safety and efficacy of LMWH in preventing VTE, pre-eclampsia, IUGR and foetal loss in pregnant thrombophilic women.

Study design:

This study is a multi-centre, open-label, randomised controlled clinical trial based in a maximum of 30 centres. Two hundred and eighty-four (284) pregnant women with confirmed thrombophilia and at high risk for pregnancy complications will be randomised to prophylactic dose dalteparin or control (identical follow-up and care, but no drug intervention). Please note that as of 27/02/2007 the number of participants has been increased to three hundred and eighty-five (385).

The study will consist of five periods: a screening period, randomisation, antenatal follow-up, labour and delivery, and postpartum follow-up. Maximum time on study will vary between 26 and 46 weeks.

The primary objective of this study is to identify if LMWH prophylaxis in thrombophilic pregnant women results in a greater than 33% relative risk reduction in the composite outcome measure (VTE, pre-eclampsia, IUGR and foetal loss) compared to control.

Secondary objectives will be to:

1. Identify if prophylactic LMWH will reduce rates of pregnancy-induced hypertension (PIH), pre-term labour and abruptio placentae in pregnant thrombophilic women compared to control
2. Determine safety of LMWH use in pregnancy (specifically rates of bleeding, thrombocytopenia and fractures)
3. Identify whether prolonged LMWH use in pregnancy results in decreased BMD compared to control

On 01/10/2007 the overall trial end date was changed from 31/06/2007 to 31/07/2011.

### **Ethics approval required**

Old ethics approval format

### **Ethics approval(s)**

Ottawa Hospital Research Ethics Board (OHREB), 25/02/2000

### **Study design**

Randomised controlled trial

### **Primary study design**

Interventional

### **Secondary study design**

Randomised controlled trial

### **Study setting(s)**

Hospital

### **Study type(s)**

Treatment

### **Participant information sheet**

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

Thrombophilia

### **Interventions**

Intervention group: 5000 IU dalteparin once daily (od) from randomisation until 20 weeks gestational age, then 5000 IU twice daily (bid) until the onset of labour. 5000 IU dalteparin od for 6 weeks postpartum.

Control group: 5000 IU dalteparin od for 6 weeks postpartum.

### **Intervention Type**

Drug

### **Phase**

Not Applicable

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

Dalteparin

## **Primary outcome measure**

The primary endpoint is a composite outcome that includes any of the following events (1 - 4):

1. Objectively documented VTEs including:
  - 1.1. Deep vein thrombosis (DVT)
  - 1.2. Pulmonary embolism (PE)
  - 1.3. Sudden death
2. Severe or early onset pre-eclampsia:
  - 2.1. Early onset defined as 32 weeks + 0 day using the time of diagnosis of pre-eclampsia as the index time
  - 2.2. Severe being pre-eclampsia with any of the following:
    - 2.2.1. Blood pressure (BP) greater than 180/110
    - 2.2.2. Increased liver function tests (LFTs)
    - 2.2.3. Thrombocytopenia
    - 2.2.4. Oliguria (less than 30 cc/hr urine output)
    - 2.2.5. Pulmonary oedema
    - 2.2.6. Seizures
    - 2.2.7. Coagulopathy
    - 2.2.8. Proteinuria greater than 5 g/24 hours
3. Intrauterine growth restriction (IUGR), for which both of following criteria must be fulfilled:
  - 3.1. Infant birth weight less than the 10th percentile in relation to normals for sex and gestational age and
  - 3.2. One ultrasound (U/S) indicating two or more of the following criteria:
    - 3.2.1. Oligohydroamnios
    - 3.2.2. Cerebral redistribution (abnormal middle cerebral artery Doppler waveform with a pulsatility index less than the 5th percentile)
    - 3.2.3. Increase in head circumference to abdominal circumference ratio over 1.1
    - 3.2.4. Abnormal umbilical artery Doppler waveform
4. Foetal loss, either:
  - 4.1. Miscarriage: foetal loss prior to 20 weeks gestation
  - 4.2. Stillbirth: foetal loss at or greater than 20 weeks gestation

## **Secondary outcome measures**

To achieve the secondary objectives the following outcomes will be determined:

1. Pregnancy induced hypertension (PIH), with or without proteinuria
2. Pre-term delivery (less than 37 weeks estimated gestational age)
3. Abruptio placentae
4. Major and minor haemorrhage
5. Thrombocytopenia (50% decrease from baseline)
6. Fractures
7. Bone mineral density (BMD) at six weeks postpartum
8. Non-compliance with study medication and/or follow up

## **Overall study start date**

01/07/2000

## **Completion date**

31/07/2011

## **Eligibility**

**Key inclusion criteria**

1. High-risk pregnant women with a confirmed thrombophilia
2. Who have had any of the following pregnancy complications:
  - 2.1. Recurrent miscarriages
  - 2.2. Stillbirth
  - 2.3. Pre-eclampsia (high blood pressure in pregnancy where protein leaks into the urine)
  - 2.4. Very small birth weight baby (called intrauterine growth restriction)
  - 2.5. Bleeding in the placenta before delivery (called abruptio placenta)
  - 2.6. Family history of blood clots in the legs or lungs
  - 2.7. Personal history of phlebitis or blood clots in the legs or lungs
3. Confirmed thrombophilia
4. 18 years of age or older

**Participant type(s)**

Patient

**Age group**

Adult

**Lower age limit**

18 Years

**Sex**

Female

**Target number of participants**

284 - 385 as of 27/02/2007

**Key exclusion criteria**

1. Greater than 19 weeks + 7 days gestational age at the time of randomisation
2. Contraindication to heparin therapy including:
  - 2.1. History of heparin induced thrombocytopenia
  - 2.2. Platelet count of less than  $100,000 \times 10^6/L$
  - 2.3. History of osteoporosis or steroid use (increased risk of osteoporosis and osteoporotic fracture with heparin therapy)
  - 2.4. Actively bleeding
  - 2.5. Documented peptic ulcer within 6 weeks (contraindication to anticoagulation)
  - 2.6. Heparin, bisulfite or fish allergy
  - 2.7. Severe hypertension (systolic blood pressure [SBP] greater than 200 and/or diastolic blood pressure [DBP] greater than 120 - contraindication to anticoagulation)
  - 2.8. Severe hepatic failure (international normalised ratio [INR] greater than 1.8) (increased likelihood of bleeding)
3. Women with serum creatinines greater than 80 and an abnormal 24 hour creatinine clearance. Women with serum creatinines less than 80 do not require a normal 24 hour creatinine clearance to be eligible.
4. Geographic inaccessibility (less likely to comply with required follow-up visits and care)
5. Need for anticoagulants as judged by the local investigator such as but not limited to:
  - 5.1. Women with recurrent foetal loss with antiphospholipid antibody syndrome
  - 5.2. Women with prior idiopathic proximal VTE:
    - 5.2.1. History of pulmonary embolism (PE) or DVT treated with anticoagulants (over one month of heparin or warfarin) or inferior vena cava (IVC) interruption

- 5.2.2. Idiopathic refers to a VTE that occurs outside all of the following periods: antepartum, postpartum, oral contraceptive use, surgery, immobilisation, cast, and/or malignancy
- 5.2.3. Proximal refers to a VTE that occurs above the bifurcation of the popliteal vein
- 5.3 Women with mechanical heart valves
6. Women less than 18 years of age
7. Women unable/unwilling to providing informed consent
8. Prior participation in TIPPS

**Date of first enrolment**

01/07/2000

**Date of final enrolment**

31/07/2011

## **Locations**

**Countries of recruitment**

Australia

Canada

United Kingdom

United States of America

**Study participating centre**

**The Ottawa Hospital**

Ottawa

Canada

K1H 8L6

## **Sponsor information**

**Organisation**

Ottawa Hospital Research Institute (OHRI) (Canada) - formerly Ottawa Health Research Institute

**Sponsor details**

The Ottawa Hospital

General Campus

501 Smyth Road

Room 1812

Ottawa

Canada

K1H 8L6

**Sponsor type**

Research organisation

**Website**

<http://www.ohri.ca/home.asp>

**ROR**

<https://ror.org/03c62dg59>

## **Funder(s)**

**Funder type**

Charity

**Funder Name**

Heart and Stroke Foundation of Canada

**Alternative Name(s)**

Heart and Stroke Foundation, Heart & Stroke Foundation of Canada, Heart & Stroke, Fondation des maladies du cœur et de l'AVC, Fondation des Maladies du Cœur du Canada, Fondation des maladies du cœur et de l'AVC du Canada, HSFC, HSF

**Funding Body Type**

Government organisation

**Funding Body Subtype**

Trusts, charities, foundations (both public and private)

**Location**

Canada

**Funder Name**

Canadian Institutes of Health Research

**Alternative Name(s)**

Instituts de Recherche en Santé du Canada, Canadian Institutes of Health Research (CIHR), CIHR\_IRSC, Canadian Institutes of Health Research | Ottawa ON, CIHR, IRSC

**Funding Body Type**

Government organisation

**Funding Body Subtype**

National government

**Location**

Canada

# Results and Publications

## Publication and dissemination plan

Not provided at time of registration

## Intention to publish date

## 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	08/11/2014		Yes	No