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FIBCON: FIBrinogen CONcentrate in paediatric cardiopulmonary bypass

Submission date 01/05/2014	**Recruitment status** No longer recruiting	[X] Prospectively registered [_] Protocol
Registration date 01/05/2014	**Overall study status** Completed	[_] Statistical analysis plan [X] Results
Last Edited 14/11/2022	**Condition category** Surgery	[_] Individual participant data

Plain English summary of protocol

Background and study aims
Newborn babies and infants needing surgery for congenital heart disease suffer the most from bleeding within the chest. As a result, they are frequently exposed to many blood products, and may also suffer consequences of blood loss. We want to find out whether giving a new blood product, human fibrinogen concentrate, to these infants, will reduce bleeding and exposure to other blood products. A unique aspect of this study will be that study drug exposure and dose will be personalised to the patient on the basis of bleeding risk. Because bleeding risk cannot be estimated accurately before the operation, we will assess this during the operation using a test for coagulation, known as rotational thromboelastometry (ROTEM).

Who can participate?
Babies who are aged less than 36 weeks with congenital heart disease requiring surgery.

What does the study involve?
We will give the study drug to only those infants who are at higher risk of bleeding during the ROTEM screening during the operation. These infants will be randomly allocated to receive either fibrinogen or a placebo (dummy). Infants at lower risk will not be allocated to any group, but remain in the study, forming an observational group. All infants will receive standard care with respect to all other aspects.

What are the possible benefits and risks of participating?
As this is an early phase trial, it is impossible to delineate risks or benefits in any meaningful way.

Where is the study run from?
Evelina Childrens Hospital (UK)

When is the study starting and how long is it expected to run for?
The study starts in June 2014 and ends in March 2016

Who is funding the study?
CSL Behring (UK)

Who is the main contact?
Dr Shane Tibby
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Contact information

Type(s)
Scientific

Contact name
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Additional identifiers

Clinical Trials Information System (CTIS)
2013-003532-68

Protocol serial number
16254

Study information

Scientific Title
Fibrinogen concentrate supplementation in the management of bleeding during paediatric cardiopulmonary bypass: a phase 1B/2A, open-label dose-escalation study

Study objectives
Fibrinogen concentrate supplementation during paediatric cardiopulmonary bypass may decrease the incidence and severity of postoperative bleeding, and reduce the need for transfusion of blood and ancillary blood products (platelets, fresh frozen plasma, and cryoprecipitate). The primary objective of this trial is to determine the dose of intraoperative fibrinogen concentrate required to achieve physiological levels of fibrin polymerization of 8 to 13 mm as measured by the rotational thromboelastometry (ROTEM) measure of fibrin-based clotting: FibTEM MCF (equating to plasma fibrinogen concentrations of 1.5 to 2.5 g/L), immediately prior to separation from cardiopulmonary bypass in neonates and children < 12 kg.

Ethics approval required
Old ethics approval format

Ethics approval(s)

London - London Bridge Research Ethics Committee, 26/02/2014, ref: 14/LO/0267

Study design
Randomised; Interventional and Observational; Design type: Process of Care, Treatment, Cohort study

Primary study design
Interventional

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Topic: Children; Subtopic: All Diagnoses; Disease: All Diseases

Interventions
Fibrinogen concentrate: IMP will be administered while on cardiopulmonary bypass. Patients will be screened while on cardiopulmonary bypass (approx 1 hour before end of operation) using Rotational Thromboelastometry: FibTEM MCF. If MCF<7mm, patients will be randomised to IMP: placebo 2:1. Dose will be tailored to patient based upon measured FibTEM MCF and desired target range.; Study Entry : Registration and One or More Randomisations

Intervention Type
Drug

Phase
Phase II

Drug/device/biological/vaccine name(s)
Fibrinogen concentrate

Primary outcome(s)
1. Fibrinogen concentration (measured using the Clauss method)
2. Fibrin polymerization (measured by rotational thromboelastometry Fib-TEM MCF) achieved within 5 minutes of completion of study drug

Key secondary outcome(s))
1. Efficacy
1.1. Mediastinal drain losses in first 24 hours after PICU admission
1.2. Requirement for delayed sternal closure due to clinical bleeding/tamponade
1.3. Requirement for ancillary blood transfusions in first 24 hours post PICU admission
1.4. Use of intra- and post-operative ancillary clotting products
1.5. Fibrinogen levels and ROTEM variables at time points T4 T6

2. Safety
1.1. Incidence of major thrombotic event/thromboembolic associated complications
1.2. Allergic/hypersensitivity reaction to study drug

Completion date
02/03/2016

Eligibility

Key inclusion criteria
1. Congenital heart disease requiring non-emergency* surgery on cardiopulmonary bypass
2. Age range: >36 weeks corrected gestation
3. Weight 2.5 to 12 kg
4. Informed consent to participate
*Non-emergency is defined as surgery that can be delayed >24 hours following diagnosis of congenital heart disease

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Child

Sex
All

Total final enrolment
111

Key exclusion criteria
1. Known pre-existing inherited coagulopathy
2. Known pre-existing inherited thrombophilia
3. Recent, acute (within previous 2 weeks) thrombosis in a major vessel or thrombotic related major complications (as defined in protocol sections 2.43 and 7.3)
4. Administration of antiplatelet agents (e.g. aspirin) <48 hours prior to surgery
5. Known hypersensitivity/allergy to the study drug or similar products
6. History of anaphylaxis
7. Enrolment in another clinical trial in the previous 3 months
8. Parent/guardian unable to provide informed consent (this can include insufficient understanding of the trial, as judged by the clinician taking consent)
9. Major comorbidity likely to increase risk of mortality from surgical procedure
10. Significant renal/liver impairment within 2 days of planned surgery (creatinine > 2x Upper Limit of Normal, Alanine Aminotransferase > 2x ULN)

Date of first enrolment
01/06/2014

Date of final enrolment
02/03/2016

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
Evelina Childrens Hospital
London
United Kingdom
SE1 7EH

Sponsor information

Organisation
Guy's and St Thomas' NHS Foundation Trust (UK)

ROR
https://ror.org/00j161312

Funder(s)

Funder type
Industry

Funder Name
CSL Behring

Alternative Name(s)
CSL Behring LLC, CSL Behring GmbH, CSL

Funding Body Type
Private sector organisation

Funding Body Subtype
For-profit companies (industry)

Location
United States of America

Results and Publications

Individual participant data (IPD) sharing plan
Not provided at time of registration

IPD sharing plan summary

Not provided at time of registration

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	01/12/2020	23/11/2020	Yes	No
Basic results			21/06/2019	No	No
HRA research summary			28/06/2023	No	No
Other publications	mechanistic sub-study of the FIBCON trial	09/11/2022	14/11/2022	Yes	No