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Paediatric accelerator mass spectrometry evaluation research study

Submission date 22/10/2012	**Recruitment status** No longer recruiting	[_] Prospectively registered [_] Protocol
Registration date 27/11/2012	**Overall study status** Completed	[_] Statistical analysis plan [X] Results
Last Edited 24/01/2017	**Condition category** Other	[_] Individual participant data

Plain English summary of protocol

Background and study aims
There is an urgent need to ensure that medicines given to children are assessed sufficiently. A range of methods have been proposed to do this. The aim of the study is to apply and test a method called microtracer dosing with accelerator mass spectrometry (AMS) bioanalysis, using paracetamol as a model drug and find out its effects on newborn, infants and toddlers. The results are compared with the information available in previous research that used standard methods. This study could establish a way for AMS studies to be a part of Paediatric Investigation Plans for development of new drugs. This will mean that new drugs can be given to children earlier than in current practice.

Who can participate?
Male and female hospitalised infants aged between preterm up to 2 years

What does the study involve?
A single microdose of radioactive paracetamol will be given to infants whose age range is preterm up to 2 years of age orally or injected through the vein. A maximum of 20 extra drops of blood is taken from each participant. This is spread over the 12 hours after the isotope dose is received. The total amount of blood taken will be 1ml. The blood is taken via the lines already in place. The maximum length of participation in the study is up to 48 hours after giving the study drug.

What are the possible benefits and risks of participating?
The participants will not gain any direct benefit. The benefits from this study are for other babies in the future as the information gathered in this study becomes available. The risks due to paracetamol will be minimal as this microdose is less than a millionth of the dose normally given to newborn babies and infants. There are no anticipated safety issues relating to exposure to the radioactive drug.

Where is the study run from?
1. Liverpool Womens NHS Foundation Trust, UK (lead centre)
2. Tartu University Hospital, Childrens Clinic, Estonia
3. Alder Hey Childrens NHS Foundation Trust, UK

When is the study starting and how long is it expected to run for?
The study started in November 2012 and will run for 2 years.

Who is funding the study?
ERA-NET PrioMedChild (Priority Medicines for Children), Netherlands.

Who is the main contact?
Miss Louise Hardman
louise.hardman@lwh.nhs.uk

Contact information

Type(s)
Scientific

Contact name
Dr Mark Turner

Contact details
Liverpool Women's NHS Foundation Trust
Crown Street
Liverpool
United Kingdom
L8 7SS
+44 (0)151 795 9558
mark.turner@liverpool.ac.uk

Additional identifiers

Protocol serial number
1.0

Study information

Scientific Title
A multi-centre clinical study to evaluate the use of a microtrace dose of 14C-labelled paracetamol and Accelerator Mass Spectrometry (AMS) bioanalysis as new tools in drug development to determine pharmacokinetics in neonates, infants and toddlers

Acronym
PAMS

Study objectives
14C-labelled microdose paracetamol has similar PK to standard, therapeutic paracetamol.

Ethics approval required
Old ethics approval format

Ethics approval(s)

NRES Committee North West - Liverpool East, 08/10/2012, ref: 12/NW/0675

Primary study design
Observational

Study design
Multicentre observational open-label study

Study type(s)
Other

Health condition(s) or problem(s) studied
Medicines for Children; Paediatrics

Interventions
No specific study-related assessments will be conducted.

No haematology, biochemistry or blood gas studies samples will be taken for the purposes of this study. The most recent blood samples will be included in the data if they are taken 24 hours before the drug is administered in neonates and up to 3-7 days before for older infants. A maximum of 5 blood samples after drug administration will also be collected. Details of blood results that will be collected for the study data are:

Biochemistry: Plasma creatinine, Na+, K+ Cl, AST, ALT, alkaline phosphatase, total bilirubin, conjugated bilirubin, albumin, total calcium, corrected calcium, magnesium, C-reactive protein.
Full Blood Count: Hgb, total white cell count, differential white cell count, MCV, MCH, MCHC and platelets.
Blood gas: pH, glucose, lactate, ionized calcium

In participants with urinary catheters in place the urine collection bag will be emptied immediately before the microdose is administered. Timed samples of urine will be collected for 48 hours after the microdose is administered.

Intervention Type
Other

Phase
Not Applicable

Primary outcome(s)
A noncompartmental model of paracetamol disposition

Key secondary outcome(s)
A population model of the whole dataset taking account of all the variables

Completion date
11/11/2014

Eligibility

Key inclusion criteria
1. Infants and toddlers from preterm neonates (32-36 GW at birth) up to 2 years of age
2. Having intravenous or intra-arterial access suitable for blood sampling
3. Written informed consent prior to any study-specific procedures
4. Able to tolerate oral administration for oral administration group

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Mixed

Sex
All

Key exclusion criteria
1. History of allergy or hypersensitivity to paracetamol;
2. Serious hepatic and/or renal impairment defined as creatinine > 150 micromol or AST or ALT > 200
3. Be otherwise unsuitable for the study, in the opinion of the investigator
4. Extracorporeal membrane oxygenation (ECMO)
5. Haemofiltration, peritoneal dialysis, haemodialysis

Date of first enrolment
12/11/2012

Date of final enrolment
11/11/2014

Locations

Countries of recruitment
United Kingdom

England

Estonia

Study participating centre
Liverpool Women's NHS Foundation Trust
Liverpool
United Kingdom
L8 7SS

Sponsor information

Organisation
Liverpool Women's NHS Foundation Trust (UK)

ROR
https://ror.org/04q5r0746

Funder(s)

Funder type
Research organisation

Funder Name
ERA-NET PrioMedChild (Priority Medicines for Children) (Netherlands)

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?
Results article	results	01/07/2015		Yes	No