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Patent ductus arteriosus (PDA) treatment in premature infants

Submission date	Recruitment status	[_] Prospectively registered
10/02/2017	No longer recruiting	[_] Protocol
Registration date	**Overall study status**	[_] Statistical analysis plan
17/02/2017	Completed	[X] Results
Last Edited	**Condition category**	[_] Individual participant data
11/10/2017	Circulatory System	

Plain English summary of protocol

Background and study aims
Patent ductus arteriosus (PDA) occurs when a blood vessel in the heart does not close after birth. For most babies, this vessel closes in the first few days after birth. However, when babies are born early the blood vessel can remain open as it is unable to close on its own. This can cause the baby to have to work harder to breathe and prevent the baby from gaining weight. A PDA can be closed in a preterm baby over the first 48 hours by being given ibuprofen (an anti-inflammatory (swelling) medication) through a needle in a vein. Studies have shown this to be safe way to close the PDA and prevent babies from requiring surgery. In some countries, the medication is not available through a needle in the vein and therefore studies need to be done to see if medication being given through the mouth is safe and effective. Using paracetamol (a commonly used pain medication) to close PDA has been suggested as an alternative. This study aims to compare two different types of medication (ibuprofen and paracetamol) that are given to babies by mouth to see how well they work at closing the PDA.

Who can participate?
Premature infants and newborns that weigh less than 1500 grams

What does the study involve?
Participants are allocated to one of two groups. Those in the first group are given a syrup form of paracetamol by mouth every six hours for three days. Those in the second group are given a syrup form of ibuprofen once daily for three days. Participants are followed up with an echocardiogram (a scan that uses sound waves to create a picture of the heart) after 24 hours to see if the PDA has closed. If the PDA has not closed yet, participants will receive a second course of the same medicine. If the PDA has not closed after the second course of medicine, they are given the other medicine.

What are the possible benefits and risks of participating?
Participants will benefit from having the PDA closed. There are no risks to participating.

Where is the study run from?
University of Jordan Hospital (Jordan)

When is the study starting and how long is it expected to run for?
June 2014 to February 2017

Who is funding the study?
University of Jordan (Jordan)

Who is the main contact?
Dr Manar Al-lawama

Contact information

Type(s)
Scientific

Contact name
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Additional identifiers

Protocol serial number
01

Study information

Scientific Title
Oral paracetamol versus oral ibuprofen for the treatment of patent ductus arteriosus in preterm infants: A randomized trial

Study objectives
Oral ibuprofen is better than oral paracetamol in treating patent ductus arteriosus in preterm infants.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Jordan University Hospital IRB Committee, 09/11/2014, ref: 108/2014/IRB J

Study design
Single-centre randomised controlled trial

Primary study design
Interventional

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Patent ductus arteriosus (PDA)

Interventions
Participants are randomly allocated to receiving either oral paracetamol or oral ibuprofen. Randomisation is done through a computer generated numbers placed in opaque envelopes with sequential numbers.

Group 1 (oral paracetamol): Participants receive 10 mg/kg/dose of paracetamol orally (as a syrup) followed by 1-2 cc 0/9% saline every six hours for three days.

Group 2 (oral ibuprofen group): Participants receive 10mg/kg/dose of ibuprofen orally (as a syrup) followed by 1-2 cc 0.9% saline once daily for three days.

An echocardiogram is done within 24 hours of last treatment dose to assess the PDA. If the treatment fails, another course of the same assigned drug is given. If the treatment fails after the second course of the same drug, the patient will receive the drug from the other group. Participants are followed up if there are respiratory distress symptoms.

Intervention Type
Drug

Phase
Not Applicable

Drug/device/biological/vaccine name(s)
1. Paracetamol 2. Ibuprofen

Primary outcome(s)
1. Closure of PDA is measured by an echocadiograph within 24 hours post treatment
2. Mortality is assessed through daily follow up of the patients and their medical records.

Key secondary outcome(s))
1. Respiratory distress syndrome (RDS) is measured using physical examination for clinical signs of respiratory distress and chest X-ray finding at baseline
2. Bronchopulmonary dysplasia (BPD) is measured using clinical examination of the patient for the need of respiratory support or supplemented oxygen at 36 weeks post conceptional age
3. Mechanical ventilation (MV) is measured using clinical examination and reviewing patient record any time during hospital stay until discharge
4. Necrotizing enterocolitis (NEC) is measured using abdominal X-ray for the presence of pneumatosis intistinalis any time during hospital stay
5. Retinopathy of prematurity (ROP) is measured using binocular indirect ophthalmoscopy exam at 32 weeks post conceptional age for premature infants born < 28 weeks gestation or at 4 weeks chronological age for premature infants born > 28 weeks gestation
6. Intraventricular hemorrhage (IVH) is measured using trans-fontanel cranial ultrasound at 7

days of age
7. Periventricular leukomalacia (PVL) is measured using trans-fontanel cranial ultrasound at one month of age

Completion date
18/02/2017

Eligibility

Key inclusion criteria
1. Premature infants born 32 weeks gestation or earlier
2. Newborns with birth weight 1500 g or under

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Neonate

Sex
All

Key exclusion criteria
1. Ductal dependent congenital heart diseases
2. Major congenital malformation
3. Grade 3-4 intraventricular hemorrhage
4. Renal impairment defined as Creatinine > 1.5 mg/dl
5. Pulmonary hemorrhage
6. Thrombocytopenia < 60.000 /mm 3
7. Elevated Alanine transaminase (ALT)

Date of first enrolment
01/03/2015

Date of final enrolment
31/10/2016

Locations

Countries of recruitment
Jordan

Study participating centre
Jordan University Hospital
Queen Rania Street

Amman
Jordan
11943

Sponsor information

Organisation
University of Jordan

ROR
https://ror.org/05k89ew48

Funder(s)

Funder type
University/education

Funder Name
University of Jordan

Alternative Name(s)
UJ

Funding Body Type
Government organisation

Funding Body Subtype
Local government

Location
Jordan

Results and Publications

Individual participant data (IPD) sharing plan
The current data sharing plans for the current study are unknown and will be made available at a later date.

IPD sharing plan summary
Data sharing statement to be made available at a later date

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	01/02/2018		Yes	No
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes