ISRCTN39264076 https://doi.org/10.1186/ISRCTN39264076

Optimising nutrition to improve growth and reduce neurodisabilities in neonates at risk of neurological impairment

Submission date
08/10/2012

Recruitment status
No longer recruiting

Registration date
09/11/2012

Overall study status
Completed

Last Edited
04/01/2019

Condition category
Nervous System Diseases

[_] Prospectively registered
[X] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol

Background and study aims
Docosahexaenoic acid (DHA), choline and uridine-5-monophosphate are dietary factors known to support healthy brain growth and development. These 'neurotrophic' factors are passed from a mother to her baby during pregnancy, with the highest levels being passed to the baby in the third trimester of pregnancy. Many people have diets lacking in these factors. In addition, babies born prematurely will not receive enough of these factors. Babies at risk of brain impairment may not have enough neurotrophic factors to allow the brain to perform natural repair processes, and to help support healthy brain growth and development. Children with brain impairment can also grow less well than children without brain impairment. The aim of this study is to assess whether or not providing adequate amounts of neurotrophic factors can improve growth and developmental outcome in babies at risk of brain impairment.

Who can participate?
Babies at risk of brain impairment.

What does the study involve?
Newborn babies eligible to join the study will be randomly allocated to receive either an active supplement containing the neurotrophic factors or a placebo (dummy) that does not contain the neurotrophic factors. This supplement will be taken every day for 2 years. Neither the parents nor the research team will know whether the baby is on the active or placebo supplement. All babies in the study will also receive support from the study dietician to make sure that they receive a healthy balanced diet and to provide help and advice with supplement administration. During the 2-year study the growth and developmental progress of each baby will be followed by the research team. Participants will also have a blood test measuring DHA levels at the beginning and end of the study. A magnetic resonance imaging (MRI) and magnetic resonance spectroscopy (MRS) scan assessing brain choline levels will be performed at the beginning of the study and at 3 months of age. A further MRI and MRS scan will also be performed at the end of the study in those children who need a scan for clinical reasons.

What are the possible benefits and risks of participating?
Babies who participate in the study may have improved growth and developmental outcome. The disadvantages of taking part are that the assessments and tests involved will require more time spent in hospital.

Where is the study run from?
Department of Paediatrics, University of Oxford (UK).

When is the study starting and how long is it expected to run for?
The study opened in September 2009 and will recruit participants until December 2012. The study will close in December 2014 when the last children taking part have completed their involvement with the study.

Who is funding the study?
The Castang Foundation (UK).

Who is the main contact?
Bonny Baker

Contact information

Type(s)
Scientific

Contact name
Dr Peter Sullivan

ORCID ID
https://orcid.org/0000-0002-7085-9879

Contact details
University of Oxford
Department of Paediatrics
Children's Hospital
John Radcliffe
Headley Way
Oxford
United Kingdom
OX3 9DU
-
peter.sullivan@paediatrics.ox.ac.uk

Additional identifiers

Protocol serial number
9348

Study information

Scientific Title

Optimising nutrition to improve growth and reduce neurodisabilities in neonates at risk of neurological impairment: a randomised interventional treatment trial

Study objectives
Dietetic and nutritional intervention that optimises macro and micro-nutrient intake will improve growth and neurodevelopmental outcomes in neonates who are at risk of neurological impairment.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Oxford Research Ethics Committee, 13/08/2008, ref: 08/H0605/70

Study design
Double-blind randomised interventional treatment trial

Primary study design
Interventional

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Neurodisabilities in neonates

Interventions
The intervention is in the form of a neurotrophic supplement containing docosahexanoic acid (DHA), uridine mono-phosphate (UMP) and choline, along with supportive vitamins and minerals. The control being used is an iso-caloric, iso-nitrogenous placebo substance.

The active supplement or control will be taken daily and added to feed or food. This can be taken orally or via a feeding tube and supplementation will continue for the whole 2 years of the study.

Follow Up Length: 24 month(s)

Intervention Type
Drug

Phase
Not Applicable

Drug/device/biological/vaccine name(s)
Docosahexanoic acid (DHA), uridine mono-phosphate (UMP) and choline

Primary outcome(s)
1. Neurodevelopmental outcome as assessed by using the Bayley Scale of Infant Development. A clinically significant improvement translates as ~10 points on the Bayley Scale (assuming

Standard Deviation (SD) of ~12)
2. Growth measure as assessed using anthropometry (weight, height, skinfold measurements and head circumference)

Key secondary outcome(s))
1. Electrophysiology: Visual Evoked Potential and behavioural vision testing - tested at baseline, term (if applicable), 6, 12 and 24 months post entry into study
2. Neuroimaging: changes of brain biochemistry and choline uptake as estimated by Magnetic Resonance Spectroscopy (MRS) at baseline and 3 month follow-up

Completion date
04/03/2015

Eligibility

Key inclusion criteria
Inclusion will depend on the presence of one or more of the following criteria:
Birth ≤30+6 weeks gestation:
1. Small for gestational age - weight <9th centile
2. Grade II, III or IV Germinal Matrix Haemorrhage (GMH) - Intra Ventricular Haemorrhage (IVH)

Birth 31-40+28 weeks gestation:
1. Grade II, III or IV Germinal Matrix Haemorrhage (GMH) - Intra Ventricular Haemorrhage (IVH)
2. Magnetic resonance imaging (MRI) scan abnormalities in posterior limb of the internal capsule (PLIC), Basal Ganglia or Thalami, White Matter and Cortex

Encephalopathy supported by either:
1. Moderately abnormal amplitude-integrated electroencephalography (aEEG)
2. Sarnat Grade II or III

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Neonate

Sex
All

Key exclusion criteria
Exclusion will depend on the presence of one or more of the following criteria:

Birth ≤30+6 weeks gestation:
1. Weight >9th centile
2. Grade I Germinal Matrix Haemorrhage (GMH) - Intra Ventricular Haemorrhage (IVH)
3. Profound hearing loss such that Bayley Assessment cannot be completed
4. Progressive neurological degenerative conditions
5. Gastrointestinal disease which significantly impairs absorption

6. Multiple congenital abnormalities or syndromic associations
7. Parents considered by clinicians to be unable to follow the study protocoL

Birth 31-40+28 weeks gestation:
1. Grade I Germinal Matrix Haemorrhage (GMH) - Intra Ventricular Haemorrhage (IVH)
2. Profound hearing loss such that Bayley Assessment cannot be completed
3. Progressive neurological degenerative conditions
4. Gastrointestinal disease which significantly impairs absorption
5. Multiple congenital abnormalities or syndromic associations
6. Parents considered by clinicians to be unable to follow the study protocol

Date of first enrolment
27/10/2010

Date of final enrolment
01/09/2013

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
Oxford University Hospitals NHS Foundation Trust
United Kingdom
OX3 9DU

Study participating centre
Royal Berkshire NHS Foundation Trust
United Kingdom
RG1 5AN

Study participating centre
Wexham Park (now Frimley Health NHS Foundation Trust)
United Kingdom
GU16 7UJ

Sponsor information

Organisation

Oxford University Hospital Trust (UK)

ROR
https://ror.org/052gg0110

Funder(s)

Funder type
Charity

Funder Name
Castang Foundation (UK)

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated and/or analysed during this study will be included in the subsequent results publication

IPD sharing plan summary
Other

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	01/09/2018		Yes	No
Protocol article	protocol	17/03/2015		Yes	No
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes