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Assessing the effects of maternal seizures during pregnancy on the brain development of children

Submission date
14/12/2018

Recruitment status
No longer recruiting

Registration date
09/01/2019

Overall study status
Completed

Last Edited
09/07/2020

Condition category
Nervous System Diseases

[X] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[ ] Results
[ ] Individual participant data
[ ] Record updated in last year

Plain English summary of protocol

Background and study aims
The treatment of epilepsy during pregnancy is a balance between treating the seizures and reducing, as far as possible, the risks presented to the developing child by medication. This study will investigate whether seizures which the mother has during pregnancy alters the brain development of the developing child.

Who can participate?
Women with epilepsy who are either pregnant (and not yet 21 weeks) or women who are trying for a baby currently. Women must be taking the medications lamotrigine (lamictal) or levetiracetam (keppra) alone or alongside other antiepileptic medications (but not if they are taking sodium valproate (epilim) or carbamazepine (tegtretol)). The study is looking for volunteers both who are having seizures and those who are not having seizures.

What does the study involve?
All participants will be asked to sign a consent form indicating that they understand the study and are happy for themselves and their baby to participate. They will then be asked to provide some information about their health, education, occupation and to record on a daily basis whether or not they have had seizure. Women can do this either in a paper seizure diary or using an app. When the women's pregnancy has passed 32 weeks they will be asked about their general health and the medications they are taking again. When the baby is born researchers at the local hospital will record information about the babies birth from medical records. Shortly after the child's first birthday a home visit will be completed where a play-based assessment will be completed with the child. This involves playing a number of games with the child, which in turn provides information on their development in areas such as reasoning, language and motor abilities. Their mothers will also be asked to complete a questionnaire about their early social development and about the mothers own mood. Mother's will also be asked to complete two brief tasks (e.g. one puzzle and one language task) to inform on their reasoning abilities.

What are the possible benefits and risks of participating?
There may be no direct benefits personally to taking part. However, following the assessment of

the child feedback would be provided to parents and a letter be sent the child's GP and kept their medical record. If the person who completed the assessment had concerns about specific areas of the child's development they would discuss it with the parents and then send a letter to the child's GP. In the longer term, the findings of this study will be of benefit to both women with epilepsy and their doctors by providing information about how seizures in pregnancy may or may not impact on how the child develops in their first year of life. This may be directly relevant to participants in the study if they were planning another pregnancy in the future.

If the participant does not already record her seizures it might seem a big task to record them everyday, however only a few details are needed and on most days the participant may simply be ticking 'no' if they did not have any seizures. A further possible disadvantage of this study is that the developmental assessment may reveal that the child is experiencing some difficulties in one or more areas of their development. In this situation, with parental permission, we would share this information with the child's GP to make sure that they can arrange the necessary support for the child.

Where is the study run from?
The study is being led by researchers at the University of Manchester and Manchester University Hospitals NHS Foundation Trust but involves doctors and nurses from 21 hospitals around the UK.

When is the study starting and how long is it expected to run for?
Set up for the study started in May 2018 and it will open to recruitment on the 14th January 2018. Women will be able to opt into the study until May 2020 and after this time no new participants will be able to opt into the study. The follow-ups after the child's first birthday will run until August 2021. The study will close on 30th October 2021 with the results being available shortly after that.

Who is funding the study?
Epilepsy Research UK

Who is the main contact?
Myfanwy Rawson
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Contact information

Type(s)
Public

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Type(s)
Scientific

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Additional identifiers

Integrated Research Application System (IRAS)
232507

Protocol serial number
IRAS 232507

Study information

Scientific Title
Neurodevelopment After Prenatal Exposure to Seizures study: a cohort study

Acronym
NAPES

Study objectives
Children exposed to frequent seizures in the womb will have poorer development at 12 months of age.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Greater Manchester Central Regional Ethics Committee, 17/05/2018, ref. 18/NW/0261.

Study design
Multi-centre prospective observational cohort study.

Primary study design
Observational

Study type(s)
Other

Health condition(s) or problem(s) studied
Epilepsy

Interventions
Participants are recruited from their local participating hospital. Following recruitment information will be taken from participants regarding their background, such as their education, health and occupation. From this point they record their seizures on a daily basis using either a paper seizure diary or an app. Each month their local research team will contact them to collect that months seizure information. In the third trimester (after 32 weeks) the participant will be contacted to provide information about their current health and medications which they are taking. Following the birth of the child information is recorded about the delivery method and the health of the child at birth. After the child's first birthday, an appointment will be arranged to see the child and parent at home where a play-based assessment will be completed. Whilst this is fun for the child it provides the assessor with important information about where the child is up to in terms of their cognitive (reasoning), language and motor development. Following the assessment of development a questionnaire will be posted to participants which will ask them about their experience of taking part in the study.

Intervention Type
Other

Primary outcome(s)
1. Cognitive development is measured using Bayley Scales of Infant and Toddler Development at 12- 15 months of age.
2. Language development is measured using Bayley Scales of Infant and Toddler Development at 12- 15 months of age.
3. Motor development is measured using Bayley Scales of Infant and Toddler Development at 12- 15 months of age.

Key secondary outcome(s))
1. Social and behavioural development is measured using Bayley Scales of Infant and Toddler Development at 12- 15 months of age.
2. Maternal experiences of participating in the study is measured using questionnaires when the child is 12- 15 months of age.

Completion date
30/04/2022

Eligibility

Key inclusion criteria
1. They have a diagnosis of epilepsy and are either:
1.1. Trying to conceive

1.2. They are pregnant and before 21 weeks gestation
1.2.1. They have an expected date of delivery prior to the recruitment closure date (30th November 2019).
2. They are taking either:
2.1. Monotherapy lamotrigine or levetiracetam
2.2. Polytherapy combinations including lamotrigine and levetiracetam and other antiepileptic drugs; with the exception of valproate and carbamazepine.
3. They are receiving their care through one of the participating centres
4. They are willing to complete prospectively recorded seizure diaries

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Sex
Female

Key exclusion criteria
1. Significant learning disability, requiring support to live independently
2. Experience or history of non-epileptic attacks (also known as NEAD or psychogenic seizures)
3. Taking non-antiepileptic medications which are known to be teratogenic (e.g. warfarin, mycophenolate)
4. English is not the first language in the home

Date of first enrolment
14/01/2019

Date of final enrolment
30/03/2021

Locations

Countries of recruitment
United Kingdom

England

Northern Ireland

Study participating centre
Manchester University NHS Foundation Trust
Oxford Road

Manchester
United Kingdom
M13 9WL

Study participating centre
Belfast Health and Social Care Trust
Royal Hospitals Grosvenor Road
Belfast
United Kingdom
BT12 6BA

Study participating centre
Lancashire Teaching Hospitals NHS Foundation Trust
Royal Preston Hospital
Sharoe Green Lane
Preston
United Kingdom
PR2 9HT

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

Study participating centre
Salford Royal NHS Foundation Trust
Stott Lane
Salford
United Kingdom
M6 8HD

Study participating centre
City Hospitals Sunderland NHS Foundation Trust
Sunderland Royal Hospital
Kayla Road
Sunderland
United Kingdom
SR4 7TR

Study participating centre
Newcastle Upon Tyne Hospitals NHS Foundation Trust
Royal Victoria Hospital
Queen Victoria Road
Newcastle Upon Tyne
United Kingdom
NE1 4LP

Study participating centre
South Tees Hospitals NHS Foundation Trust
Marton Road
Middlesbrough
United Kingdom
TS4 3BW

Study participating centre
Walton Centre for Neurology and Neurosurgery NHS Foundation Trust
Lower Lane
Liverpool
United Kingdom
L9 7LJ

Study participating centre
University Hospitals of Morecambe Bay NHS Foundation Trust
Lancaster Royal Infirmary
Ashton Road
Lancaster
United Kingdom
LA1 4RP

Study participating centre
Warrington and Halton Hospitals NHS Foundation Trust
Lovely Lane
Warrington
United Kingdom
WA5 1QG

Study participating centre

Countess of Chester Hospital NHS Foundation Trust
The Countess Of Chester Health Park
Liverpool Road
Chester
United Kingdom
CH2 1UL

Study participating centre
East Lancashire Hospitals NHS Foundation Trust
Royal Blackburn Hospital
Haslingden Road
Blackburn
United Kingdom
BB2 3HH

Study participating centre
Mid Cheshire Hospitals NHS Foundation Trust
Leighton Hospital
Crewe
United Kingdom
CW1 4QJ

Study participating centre
York Teaching Hospitals NHS Foundation Trust
Wigginton Road
York
United Kingdom
YO31 8HE

Study participating centre
Leeds Teaching Hospitals NHS Foundation Trust
St James Hospital
Beckett Street
Leeds
United Kingdom
LS9 7TF

Study participating centre
University Hospitals Birmingham NHS Foundation Trust
Queen Elizabeth Hospital Birmingham
Mindelsohn Way

Birmingham
United Kingdom
B15 2GW

Study participating centre
County Durham and Darlington NHS Foundation Trust
North Road
Durham
United Kingdom
DH1 5TW

Study participating centre
Blackpool Teaching Hospitals NHS Foundation Trust
Blackpool Victoria Hospital
Whinney Heys Road
Blackpool
United Kingdom
FY3 8NR

Study participating centre
Stockport NHS Foundation Trust
Stepping Hill Hospital
Stockport
United Kingdom
SK2 7JE

Study participating centre
The Mid Yorks Hospital NHS Foundation Trust
Pinderfields Hospital
Wakefield
United Kingdom
WF1 4DG

Sponsor information

Organisation
University of Manchester

ROR

https://ror.org/027m9bs27

Funder(s)

Funder type
Charity

Funder Name
Epilepsy Research UK

Alternative Name(s)
Epilepsy Research UK, The Epilepsy Research Institute, ERUK

Funding Body Type
Private sector organisation

Funding Body Subtype
Other non-profit organizations

Location
United Kingdom

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study are/will be available upon request from Dr Rebecca Bromley, rebecca.bromley@manchester.ac.uk, in electronic format, within a year of the study end for utilisation in studies with similar aims and where the participant has consented.

IPD sharing plan summary
Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
HRA research summary			28/06/2023	No	No
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes