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Pilot study to investigate if reducing serotonin levels in patients with chronic fatigue syndrome is effective.

Submission date
18/11/2012

Recruitment status
No longer recruiting

Registration date
23/04/2013

Overall study status
Completed

Last Edited
11/06/2015

Condition category
Nervous System Diseases

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

Plain English summary of protocol

Background and study aims
Chronic fatigue syndrome (CFS) is still an enigmatic disorder. It is complex and has a huge impact on the lives of those affected. Full recovery without treatment is rare. We still do not have a somatic explanation for the fatigue is lacking. Enhanced serotonin metabolism could play an important role in CFS. This study investigates the effect of reducing serotonin levels in patients with CFS.

Who can participate?
Female CFS-patients between 18 and 40 years, fulfilling the US Center for Disease Control and Prevention criteria can participate. Exclusion criteria are: pregnancy, previous or current participation in CFS-research, use psychotropic medication (antidepressants, sleep medication) in the last month. Vegetarians and lactating women are excluded as well.

What does the study involve?
The effect on fatigue severity, concentration and mood will be assessed. Serotonin levels can temporarily be reduced by taking an amino-acid drink without tryptophan. Tryptophan is a precursor of serotonin. There are two test-days, one week apart. On each test day patients will receive an amino acid drink. Patients will receive a dummy amino-acid drink and on the other test day patients will receive the real amino acid drink that will reduce serotonin levels. At the end of the study we will compare the effects of the real and the dummy drinks.

What are the possible benefits and risks of participating?
The effect of lowering serotonin levels in CFS patients is under investigation. It is not clear whether there will be a positive effect. During the study blood sampling will take place. Bruising can occur. The amino acid mixtures have an unpleasant taste. Nausea can occur during and after drinking the mixtures.

Where is the study run from?
The study was set up by the Radboud University Nijmegen Medical Centre, Department of General Internal Medicine, Nijmegen Expert Centre Chronic Fatigue and Donders Institute for Brain, Cognition and Behaviour (Netherlands).

When is the study starting and how long is it expected to run for?
The study ran between June and December 2011.

Who is funding the study?
Funding was provided by Prof. dr. J.K. Buitelaar
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Scientific

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Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number

Secondary identifying numbers
N/A

Study information

Scientific Title

The effect of acute tryptophan depletion in chronic fatigue syndrome, a pilot study.

Study objectives
There is clinical and experimental evidence implicating enhanced serotonin metabolism in chronic fatigue syndrome. It is hypothesed that reducing central serotonin levels is effective in chronic fatigue syndrome.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Radboud University Nijmegen Medical Centre, 01/09/2005, ref: 2005/167

Study design
Placebo-controlled cross-over study

Primary study design
Interventional

Secondary study design
Randomised cross over trial

Study setting(s)
Hospital

Study type(s)
Treatment

Participant information sheet
Not available in web format, please use the contact details below to request a patient information sheet

Health condition(s) or problem(s) studied
Pathophysiology of chronic fatigue syndrome

Interventions
Acute Tryptophan Depletion (ATD) is a reliable and reversible challenge test for serotonin.
It has widely used to investigate the role of serotonin in a variety of psychiatric disorders.
ATD is a method that significantly reduces central serotonin in human subjects. ATD is a technique that uses a combination of low tryptophan diet and a tryptophan-deficient protein load containing large amounts of other large neutral amino acids to produce maximal brain tryptophan and serotonin depletion. Within a few hours serotonin depletion can be achieved.
The effect of ATD on CFS-related symptoms, like fatigue, concentration and mood will be assessed.
Tryptophan and other amino acids levels will be assessed.
There are two test-days. On each test day baseline assessments (self-report questionnaires and blood sampling) will take place in the morning. Five hours after ingestion of the ATD mixture or the dummy mixture the assessments will be repeated. Each test day starts at 8.00 hrs and ends at 16:00 hrs.

Intervention Type

Other

Phase
Not Applicable

Primary outcome measure
1. Fatigue severity
2. Concentration
3. Mood

Secondary outcome measures
No secondary outcome measures

Overall study start date
01/06/2011

Completion date
31/12/2011

Eligibility

Key inclusion criteria
1. Female CFS-patients, according to CDC criteria
2. Aged 18 - 40 years
3. Written informed consent

Participant type(s)
Patient

Age group
Adult

Lower age limit
18 Years

Sex
Female

Target number of participants
5

Key exclusion criteria
1. Nursing or pregnant women
2. Current psychiatric comorbidity
3. Vegetarians
4. Use of psychotropic drugs: current or previous month
5. Current or previous engagement in CFS research

Date of first enrolment
01/06/2011

Date of final enrolment
31/12/2011

Locations

Countries of recruitment
Netherlands

Study participating centre
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Sponsor information

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Sponsor type
University/education

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ROR
https://ror.org/05wg1m734

Funder(s)

Funder type
University/education

Funder Name
Radboud University Nijmegen Medical Center (Netherlands)

Results and Publications

Publication and dissemination plan
Not provided at time of registration

Intention to publish date

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	16/09/2014		Yes	No