

# Eating behaviour in craniopharyngioma

<b>Submission date</b> 04/04/2019	<b>Recruitment status</b> No longer recruiting	<input type="checkbox"/> Prospectively registered <input checked="" type="checkbox"/> Protocol
<b>Registration date</b> 10/04/2019	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input checked="" type="checkbox"/> Results
<b>Last Edited</b> 09/07/2024	<b>Condition category</b> Cancer	<input type="checkbox"/> Individual participant data

## Plain English summary of protocol

### Background and study aims

Craniopharyngioma, although a non-malignant brain tumour, causes major health problems because of its location. It is near vision nerves, the pituitary gland controlling many hormones, and brain centres controlling appetite. Treatment involves surgery and radiotherapy, which can cause further damage. Obesity and associated long-term risks are common, and the reasons are complex. Through this project, we will investigate obesity in young people with craniopharyngioma. We want to find out if obesity is related to overeating from a lack of feeling full, appetite hormones not functioning or low metabolic rate.

### Who can participate?

Patients aged between 7-25 years who have a diagnosis of craniopharyngioma

### What does the study involve?

First, we will assess whether patients and their families are prepared to take part in research. Second, we will investigate which tests are best to use. We will measure the brain's response to food cues using special MRI scans and appetite hormones levels in the blood, as well as metabolic rate and questionnaires on quality of life and typical eating. Patients will eat lunch, so we can assess food choice and portion size. These measures will be analysed in relation to each patient's craniopharyngioma severity and treatment, number and type of hormone problems and level of obesity.

### What are the possible benefits and risks of participating?

Although craniopharyngiomas are rare (1-2 new childhood patients/per year in the South-west), this project has the potential to identify novel interventions. It will make a real impact to improve quality of life and health in craniopharyngioma patients with unmet complex needs related to obesity. These projects could also help us understand how weight problems could develop after other brain injuries.

### Where is the study run from?

University Hospitals Bristol Education & Research Centre, UK

### When is the study starting and how long is it expected to run for?

January 2019 to March 2022

Who is funding the study?  
UHBristol Research Capability Fund

Who is the main contact?  
Dr. Elanor Hinton, elanor.hinton@bristol.ac.uk

## Contact information

**Type(s)**  
Scientific

**Contact name**  
Dr Elanor Hinton

**ORCID ID**  
<https://orcid.org/0000-0003-2793-8552>

**Contact details**  
NIHR Bristol BRC Nutrition Theme  
University Hospitals Bristol Education & Research Centre  
Upper Maudlin Street  
Bristol  
United Kingdom  
BS2 8AE  
0117 342 1500  
elanor.hinton@bristol.ac.uk

## Additional identifiers

**Protocol serial number**  
3

## Study information

**Scientific Title**  
Evaluating eating behaviours, energy homeostasis and obesity in childhood craniopharyngioma:  
A feasibility study

**Study objectives**  
The primary research question is whether functional neuroimaging and measurement of appetite hormones are useful tools to investigate hypothalamic obesity and eating behaviour in patients with craniopharyngioma.

**Ethics approval required**  
Old ethics approval format

**Ethics approval(s)**

Approved 16/11/2018, South West -Frenchay Research Ethics Committee (Health Research Authority, Whitefriars, Level 3 Block B, Lewins Mead, Bristol, BS1 2NT; nrescommittee.southwest-bristol@nhs.net; 0207 1048028), ref: 18/SW/0235, IRAS project ID:250104

## **Study design**

Observational cross-sectional cohort single-centre feasibility study

## **Primary study design**

Observational

## **Study type(s)**

Other

## **Health condition(s) or problem(s) studied**

Craniopharyngioma

## **Interventions**

No intervention in this study.

It is a feasibility study measuring eating behaviour, appetite, functional magnetic resonance imaging (cerebral blood flow, response to food cues and resting brain networks), metabolic rate, OGTT in addition to measuring gastrointestinal hormones.

This study aims to investigate the feasibility of postulated methods of measuring appetite hormones, metabolic rate, neural response to food cues, and to characterise potential disruption between the hypothalamus and cortical limbic system in patients with craniopharyngioma. The insights gained from this feasibility study will inform a future multicentre trial to investigate the safety, efficacy and cost of a novel intervention in patients with craniopharyngioma to address their eating behaviour and obesity.

## **Objectives**

1. Characterise the severity of the tumour, treatment and pituitary dysfunction in the studied craniopharyngioma patient population.
2. Assess whether sufficient patient numbers can be recruited.
3. Assess patient tolerability of the number and nature of measures used in the study.
4. Investigate which measures are the most informative to elucidate the nature of eating behaviour in those with craniopharyngioma-related obesity.

## **Intervention Type**

Other

## **Primary outcome(s)**

1. Characterisation of the severity of the tumour, treatment and pituitary dysfunction in the studied craniopharyngioma patient population. Assessed using a proforma and medical notes once patient recruited into the study.
2. Feasibility outcome (i) can sufficient patient numbers can be recruited (number recruited compared to number on clinic database).
3. Feasibility outcome (ii) patient tolerability of the number and nature of measures used in the study. Measure by an acceptability questionnaire at the end of the study session.
4. Preliminary data on the following: (i) functional MRI (using arterial spin labelling and BOLD fMRI scans), (ii) indirect calorimetry to measure resting metabolic rate, (iii) ad libitum food

consumption (food choice and portion size), (iv) oral glucose tolerance test, measuring glucose, insulin, PYY, ghrelin, GLP-1 (5 time-points before and 30, 60, 90 and 120 post-glucose). (iv) Leptin will also be measured at baseline as well as a full blood count (FBC) and electrolytes (U&Es). (v) Appetite ratings are also given at the same timepoints during the OGTT.

### **Key secondary outcome(s)**

1. Quality of life questionnaire (age appropriate) measured once using the MMQL.
2. Hyperphagic eating behaviour questionnaire
3. Adult or Child eating behaviour questionnaire
4. Body composition measured using multifrequency bioelectrical impedance, Tanita MC-780), to give fat-free mass and fat mass, and total body water

### **Completion date**

31/03/2022

## **Eligibility**

### **Key inclusion criteria**

Patients aged between 7-25 years who have a diagnosis of craniopharyngioma

### **Participant type(s)**

Patient

### **Healthy volunteers allowed**

No

### **Age group**

Mixed

### **Sex**

All

### **Key exclusion criteria**

1. Clinically unwell requiring hospital or intensive treatment
2. Unwilling to fast
3. Patients for whom it would be unsafe to have an MRI including those with:
  - 3.1 Certain metal implants
  - 3.2 Tattoos with metallic ink
  - 3.3 Metal body piercings which cannot be removed
4. Pregnancy to avoid harm to the foetus
5. Claustrophobia in the closed MRI environment or unable to tolerate the MRI scanner
6. Weight above 152kg and/or girth greater than 210cm due to size limitations of MRI scanner

### **Date of first enrolment**

25/01/2019

### **Date of final enrolment**

31/03/2020

## **Locations**

**Countries of recruitment**

United Kingdom

England

**Study participating centre**

**Clinical Research and Imaging Centre (CRICBristol)**

60 St Michael's Hill

Bristol

United Kingdom

BS2 8DX

## Sponsor information

**Organisation**

University of Bristol

**ROR**

<https://ror.org/0524sp257>

## Funder(s)

**Funder type**

Hospital/treatment centre

**Funder Name**

UHBristol Research Capability Fund

## Results and Publications

**Individual participant data (IPD) sharing plan**

The datasets generated during and/or analysed during the current study will be stored in a non-publicly available repository once our analyses have been completed.

The final, anonymised data-set (all measures) will be made available through Pure, the University Research Information System and institutional repository for the University of Bristol. The dataset will become available once the data has been fully analysed by the research team, so hopefully within one year of data collection completion. The research project may also be added

to the Explore Bristol Research (EBR) - the public catalogue of the University's research. This is the weblink to the repository, which will be set up once the data is collected: <http://www.bristol.ac.uk/red/research-policy/pure/about/>

## IPD sharing plan summary

Stored in repository

### Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Results article</a>		17/05/2023	09/07/2024	Yes	No
<a href="#">Abstract results</a>		15/09/2022	10/03/2023	No	No
<a href="#">Abstract results</a>		17/08/2022	10/03/2023	No	No
<a href="#">Abstract results</a>			10/03/2023	No	No
<a href="#">Abstract results</a>			10/03/2023	No	No
<a href="#">Abstract results</a>	Page 27. P19	12/07/2021	10/03/2023	No	No
<a href="#">HRA research summary</a>			28/06/2023	No	No
<a href="#">Preprint results</a>		11/01/2023	09/03/2023	No	No
<a href="#">Protocol file</a>	version 5	13/02/2020	10/03/2023	No	No