

A study using Deep Brain Stimulation (DBS) , multimodal neuroimaging and neuroethics to understand and treat severe enduring Anorexia Nervosa (SE-AN).

(project no. 67-16)

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Aims

1: to provide feasibility and preliminary efficacy data on an experimental intervention: DBS to the Nucleus Accumbens at the anterior limb of the internal capsule , in severe enduring AN.

2: to develop a neuroethical gold standard to guide applications of DBS to AN.

3: to assess neural changes after DBS

Background

Research suggest that altered eating and the pursuit of thinness in AN is in part a consequence of aberrant reward circuitry, resulting in compulsive pursuit of thinness with substantial overlap in the neural circuits implicated in reward processing and compulsivity . (DBS) of the Nucleus Accumbens (NA)- located in ventral striatum and central to reward processing. Neural and symptomatic is reported in compulsive disorders such as OCD and in rats DBS to the NA mShell specifically increases food intake.

Method

A longitudinal study of a case series of 5 individuals with severe enduring AN > 7 years with an integrated neuroethical sub-study. DBS is delivered to the NA and we track mechanisms underpinning AN using MEG and neuropsychological measures . The study is ongoing and registered with clinical trials.gov and has full HRA approval .

Execution

Serial measures are taken on each intensively studied patient pre and post Deep Brain Stimulator insertion, allowing elucidation of processes involved in symptomatic change. over a 15 month period: including a double-blind crossover phase of on off DBS.

May 2017 – May 2019

The project is funded by the Swiss Anorexia Nervosa Foundation.