Stimulating Safety in the Brain May Help Alleviate OCD [1]

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Calificación:

Press Release May 14, 2012 Researchers have found that deep brain stimulation (DBS), a technique used experimentally to treat depression and obsessive compulsive disorder (OCD), strengthens memories of safety in the brain. This suggests a possible mechanism for how DBS might provide relief for sufferers of these diseases, and could lead to new methods to treat anxiety disorders. The study appears in the May 14 online edition of the Proceedings of the National Academy of Science. DBS has been used for over a decade to treat Parkinson's disease and other movement disorders. In this procedure, wires are surgically implanted into specific areas of the brain and are activated via a pacemaker-like device placed in the chest. Implanting wires in the ventral capsule/ventral striatum reduces the compulsions seen in persons with OCD, such as excessive hand washing; but why it works is still a mystery. "People with OCD feel protected from danger by their compulsions, so perhaps DBS allows them to extinguish the compulsions and finally feel safe", said Dr. Gregory Quirk of the University of Puerto Rico, senior author of the study. To test this hypothesis, their research group used a well-studied animal model of fear learning, in which rats learn to freeze to a tone which has been paired with a mild shock. Playing the tone without the shock repeatedly extinguishes the freezing responses. Applying DBS to the ventral striatum during the extinction phase caused rats to extinguish more quickly, and strengthened their memory of safety. Rats given DBS showed reduced freezing to the tone, even after the DBS was turned off. In addition to decreasing fear responses, DBS also affected the neural circuits that learn extinction. Brains from rats receiving DBS showed increased levels of a plasticity marker in structures that learn and store extinction memory, such as the amygdala and prefrontal cortex. "It appears that DBS primed the neural circuits so that extinction

could be learned more easily", said Jose Rodriguez-Romaguera, a graduate student and co-author of the study. Also co-authoring the study with Quirk and Rodriguez-Romaguera was post-doctoral fellow Dr. Fabricio Do Monte. The results fit with clinical observations. Behavioral therapies for OCD consist of repeatedly exposing patients to their anxiety triggers, in order to extinguish their compulsions. People who were not helped by exposure therapy before DBS find the same therapy helpful during DBS. Therefore, it might be that DBS boosts the effects of exposure therapy similarly to the reduction of fear in rats. This idea is now being formally tested in a multicenter clinical trial led by Dr. Benjamin Greenberg at Butler Hospital and Brown Medical School. "The idea that brain surgery (DBS) might be a bridge to a psychological treatment (exposure therapy) in otherwise untreatable OCD is really promising" said Greenberg. This research was funded by the National Institute of Mental Health, through a Silvio O. Conte Center for Research in OCD.

Links
[1] https://www.cienciapr.org/en/external-news/stimulating-safety-brain-may-help-alleviate-ocd?language=en