LOBOTOMIES: WHO NEEDS ALL THAT BRAIN?

(1) These days people with mental illnesses like schizophrenia, depression, mania and anxiety are treated with medication and psychotherapies focusing on retraining the mind. Though these types of treatments seem common, it wasn't until the mid-1950s that psychoactive drugs (drugs that act on the brain) became commonly used to treat mental illnesses. Before this, many treatments for mental illnesses were often brutal and ineffective.

(2) One such treatment was the lobotomy. A lobotomy is a surgery which cuts the connection between one area of the brain and another so that they cannot communicate with each other. Lobotomies are performed on the front of the brain called the prefrontal cortex. This procedure was thought to remove disruptive and violent actions and thoughts in patients, and often it did, but at a severe cost.

(3) The prefrontal cortex is the area of the brain that performs higher level thinking. It is responsible for decision making, planning, problem solving, inhibiting inappropriate behaviors and it is also the source of our personality. Prefrontal lobotomies often left patients calmer and less aggressive, but for many, it also cost them their intelligence and personality. Many lost the ability to make decisions, communicate and control their motor functions. Some patients even died.

(4) In 1888, Gottlieb Burckhardt performed the first modern psychosurgery, which is a surgery intended to alter mental functioning. He operated on 6 patients who exhibited various mental illnesses and removed different parts of their brain. He did not have much success with his patients and gave up on his efforts when they were widely ridiculed by the medical community who thought that psychosurgery was an irresponsible and dangerous treatment.

(5) Psychosurgery was tried again in 1935 when António Egas Moniz, a Portuguese neurologist, performed his first leucotomy (later renamed lobotomy) to treat mental illness. He called his procedure a leucotomy because the word *leukos* means "white" and *tomia* means "cutting". The leucotomy was designed to "cut" the white matter in the brain. The brain is made up of gray and white matter. The gray matter is composed of brain cells while the white matter is composed of the axons that connect brain cells to one another to allow for communication between brain cells. Moniz thought that destroying the white matter in the prefrontal area would prevent many of the symptoms of mental illnesses.

(6) Initially, Moniz's leucotomy involved drilling holes into the skull and injecting the brain with ethanol to destroy the white matter in the prefrontal area, but it ended up damaging other parts of the brain. Moniz then designed an instrument he called a leucotome which had a metal loop which could be inserted into the white matter and moved around to physically destroy the tissue. Moniz was awarded a Nobel Prize in Physiology and Medicine in 1949 for developing this technique. Decades later, patients of lobotomy and their families began campaigning to remove the award from Moniz.

(7) In 1936, an American psychiatrist named Walter Freeman, with the help of a neurosurgeon, Dr. James Watts, began performing leucotomies in the U.S. but Freeman called them prefrontal lobotomies. His technique was similar to Moniz's but in 1946 Freeman simplified the technique so that it wouldn't require general anesthesia, or even a qualified neurosurgeon. In this way, Freeman hoped to make lobotomies a widely used technique in mental hospitals which lacked surgical facilities, surgeons and anesthetics. Freeman felt that a simpler technique would allow psychiatrists with no surgical education, like himself, to perform the operation.

(8) Freeman called his simpler technique the

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transorbital lobotomy. It involved inserting a thin surgical icepick-like device, called an orbitoclast, into one eye socket and hammering on the orbitoclast until the tip of it broke through the skull. When it entered the brain, the tip was moved around to destroy the brain tissue. This technique could take as little as 10 minutes and Freeman was once recorded performing more than 20 lobotomies in a day using this technique. He called his van the "lobotomobile" and he travelled in it to perform lobotomies and teach his procedure all around the U.S. His enthusiasm and support of the procedure helped spread its popularity this resulted in over 40 000 lobotomies performed in U.S. between the 1930s and 50s.

(9) In 1950, Freeman's long time partner, Dr. James Watts, split from Freeman because he was disgusted with how often and carelessly Freeman used the procedure. Freeman never used gloves or wore a mask and would often performed lobotomies in non-surgical settings for an audience. Many lobotomies were done on people with minor psychological issues and even against the patient's will when family members insisted on the procedure, often not understanding the potential outcomes. In the 1950s, antipsychotic and antidepressant drugs were shown to be more effective at treating mental illnesses without the severe side effects of a lobotomy. These days lobotomies are rarely performed and have been discredited as a useful treatment for mental illnesses.

Article Questions

1) What were lobotomies developed to treat?

2) What is the prefrontal cortex responsible for?

3) What are some of the common negative side effects that occur after a lobotomy?

4) What is psychosurgery?

5) Why does leucotomy/lobotomy target white matter for destruction?

6) What new technique did Walter Freeman develop? Describe how it was performed.

7) Why did James Watts end his partnership with Walter Freeman?

8) Why did lobotomies become less popular and fade away as a useful technique for treating mental illness?