

NEUROIMAGING THE SUICIDAL BRAIN

Introduction: With suicide being the 10th leading cause of death in the U.S, it is so important to catch signs of suicide early before anyone contemplates taking their own life. Using neuroimaging can detect suicidal thoughts or ideations. Once it is confirmed that one has been having thoughts of suicide, a physician can step in and take appropriate actions.

Functional Magnetic Resonance Imaging: In certain images using fMRI, the results showed a lower glucose uptake in the prefrontal cortex and dorsal anterior cingulate gyrus. It also revealed that there was greater activity in the right lateral orbitofrontal cortex and decreased activity in the right superior frontal gyrus.

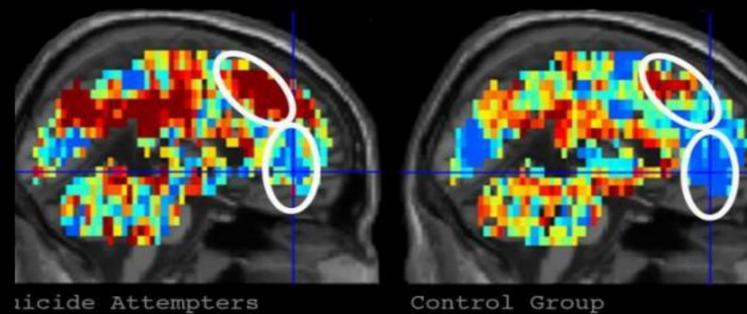


Image 1: A fMRI showing biomarkers of an individual with suicidal thoughts.

Positron Emission Tomography: Imaging using PET scanning showed there were reduced serotonin transmitter potential in those who have tried to take their own life. Low serotonin levels have been linked to those who have suicidal thoughts. Doctors can treat the root of the problem after using this imaging.

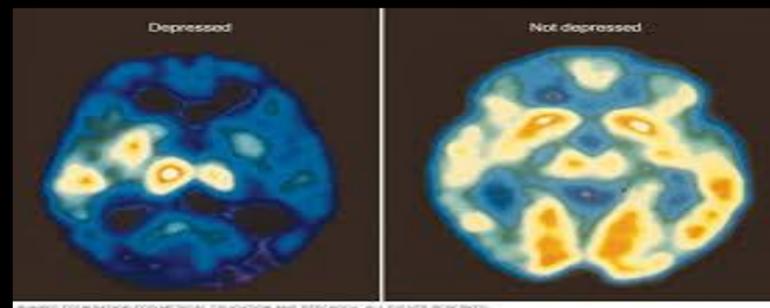


Image 2: A PET scan of a depressed, suicidal patient.

Computed Tomography: By using computed tomography, it can indicate that someone has attempted suicide based on the location and type of injury. When imaging one's brain, it shows a decrease in gray matter in the right middle temporal gyrus, but an increase in gray matter volume in the right parietal lobe.

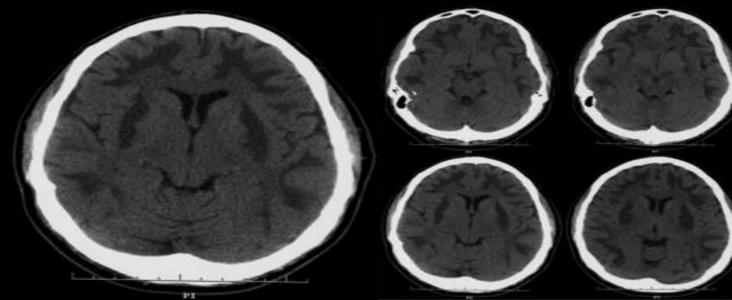


Image 3: A CT scan showing a patient who attempted suicide by methanol intoxication.

Signs/Risk Factors: Some risk factors include loss of home, job, spouse, verbal abuse, tragedies, etc. It is important to look for signs of depression and sadness, isolation, and aggressiveness.

Conclusion: It is ideal to treat suicidal thoughts before they happen. Using neuroimaging, doctors are able to detect the problem areas of the brain and make a treatment based on what the imaging shows. In order to decrease the number of suicides, people have to be aware that something is wrong to begin with. As more doctors become aware of the findings on neuroimaging scans, things will become easier to diagnose.

References:

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