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# Brain Mapping and Brain Scanning: Technology of Contemporary World

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**Abstract:** Brain mapping and brain scanning is the advance technology which is very useful for today's world. As the technology is improving day by day its effect is also very dangerous for the people. To identify the activity which are taking place in the brain there are some imagining technique from which doctors can immediately identify the problem, the person is facing, it can be overthinking, sleeping disorder, brain stroke, heart attack, cancer and other related disease through the technique patients' condition can be fully identified and it can also be treatable.

**Keywords:** Brain, Disorder, Disease, Scanning, Technology

## I. BRAIN MAPPING

It is very helpful to see the activities of brain through imagining. It is the technique from which we can know about parts of brain and how the parts of brain work together. It also helps doctors to study about various parts of the brain. Brain has different functions like-movement, memory, hearing, reading, balance, coordination, sensation, understanding, behavior, speaking, reasoning, thinking etc. It is the study of function of the brain and spinal cord through the use of imaging (including intra-operative, microscopic, endoscopic and multi-modality imaging), immunohistochemistry, molecular & optogenetics, stem cell and cellular biology, engineering (material, electrical and biomedical), neurophysiology and nanotechnology

## II. BRAIN SCANNING

Brain scanning is also called-neuroimaging. It is the study through which we know the structure and functions of central nervous system. It is also use for detecting brain abnormalities in human. A number of diagnostic methods are available for detecting intracranial abnormalities are called brain scanning

## III. BRAIN IMAGING TECHNOLOGY

Moniz, a neurologist created first cerebral arteriogram in 1927 Since then, neuroimaging techniques have gotten increasingly more sophisticated, and are an important tool for neurology and mental health specialists. There are lots of technique for brain imagining and some are as follow medical technology is has come so far in recent years that now every single treatment is possible. now it is very common to detect the activities of brain vie- imagining technique such as Functional Magnetic Resonance Imaging (fMRI), Computerized Tomography (CT), Positron Emission Tomography (PET) and Electroencephalography (EEG)

- 1) **Functional Magnetic Resonance Imaging (fMRI):** fMRI measure the electrical activity by detecting changes in oxygen level in the blood. it is called as BOLD (blood-oxygen-level-dependent response).it is so beneficial for researchers and physicians to observe the brain activity with safety and painlessly, fMRI also reveal which part of brain is active during different activities researcher and physicians are using this technique for better diagnose and better treatment, of the disease.it measures the activity of brain and detect the changes in blood flow. fMRI also detect abnormalities of brain that can not found through other imagining techniques. While the fMRI is going on you might instruct to perform certain tasks like – lift your leg, lift your arm, think of word playground, winter etc. these tasks measure the activity of brain.
- 2) **Computerized Tomography (CT):** CT scan are also called as radiographers. It provides the detail structure of an individual's body, including the internal organs bones, and vessels computerized tomography scan usually known as CT scan it is an imagining technique use to visualize the detail about internal image of the body.in this technique the signals are produced by the machines. And the connected computer has to generate tomographic images and give detail information about patient. CT scan can be used to monitor the condition of patient, to diagnose of disease, further treatment, guidance

- 3) *Positron Emission Tomography (PET)*: A PET scan detect the work of organs and tissues PET is quite different from MRI and CT scans. It shows the structure, and blood flow of the organs. PET scan can easily detect the early symptoms of harmful and dangerous disease such as-cancer, heart disease and brain related disease. In this PET Scan there is a tracer that helps in detecting disease and that tracer is called as radioactive tracer. Doctors can use this PET for detecting following things Cancer, thyroid cancer, lung cancer, breast cancer. Heart related disease–heart attack, artery disease Brain related disease-tumors, Alzheimer’s disease.
- 4) *Electroencephalography (EEG)*: EEG is a test use by doctors to measures activity in the brain using some small, metal discs which are called (electrodes) which are attached to the scalp. Brain cells communicate through electrical impulses which are active every time, even during sleep. EEG helps in finding the changes in brain activity that are in detecting brain disorders, An EEG might also be helpful for detecting correct treatment-Brain tumors, head injury, Brain dysfunction such as Sleep disorders Inflammation of the brain Stroke Sleep disorder etc.

#### IV. ANALYSIS OF DIFFERENT PARTS OF BRAIN

It provide structure of the brain this brain mapping is so beneficial as it works on both psychologically and medically. Medical department can use this information for the treatment

- 1) *Symptoms & Causes*: IT is important to measure the difficulties for the betterment of patient and from which we can easily measure why the patient is suffering from anxiety, sadness, and fatigue and other health related issues which is affecting our society every day.
- 2) *Treatment*: It is very helpful for doctors to create new treatment plans for any disease which a patient is facing. In some cases, the symptoms of a condition are so hard to detect in that case it is so helpful for doctors. Brains specific sections are responsible for symptoms of illness. And doctor use brain mapping to develop treatment plan. And can focus on specific part of brain responsible for the symptom.

#### V. CONCLUSION

Brain mapping is all about seeing each part of brain and functions of brain. Brain has different functions like-movement, memory, hearing, reading, balance, coordination, sensation, understanding, behavior, speaking, reasoning, thinking etc. It is the study of function of the brain and spinal cord through the use of imaging (including intra-operative, microscopic, endoscopic and multi-modality imaging) It is the study through which we know the structure and functions of central nervous system. It is also use for detecting brain abnormalities in human. There are some techniques of brain scanning and some are-functional magnetic resonance imaging (fMRI), computerized tomography (CT), positron emission tomography (PET), electroencephalography (EEG) these are some techniques from which diagnose of disease and treatment can be given to the patient. The disease can be identified through the little symptoms also because the technology is so fast that it is so easy to detect the problems of patient through little symptoms and there are many techniques from which best possible treatment can be given to the patient from different machines doctor can identify different parts as well as different functions of the brain it is easy to detect symptoms of patient via imagining techniques that are Functional magnetic resonance imaging (fMRI), computerized tomography (CT), positron emission tomography (PET) and electroencephalography (EEG).

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