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Opinion Article

The Advantages and Risks of Brain Scans for Health Screening

Reria Didik*

Department of Neurology, University of Malaya, Kuala Lumpur, Malaysia

DESCRIPTION

Brain scans are imaging tests that use different technologies to produce pictures of the brain and its structures. They can help doctors diagnose and monitor various health conditions that affect the brain, such as tumors, strokes, infections, dementia, and more. Some of the most common types of brain scans are CT scan, MRI scan, and PET scan.

Computed Tomography (CT scan) uses X-rays to create a detailed image of the brain. It can show brain damage, bleeding, swelling, or other abnormalities that may require immediate surgery. It can also rule out other causes of dementia symptoms, such as tumors or infections.

Magnetic Resonance Imaging (MRI scan) uses radio waves and a strong magnetic field to produce a high-resolution image of the brain. It can show more details than a CT scan, such as changes in the brain tissue, blood vessels, or nerves that may indicate diseases like Alzheimer's or multiple sclerosis.

Positron Emission Tomography (PET scan) uses a radioactive tracer that is injected into the bloodstream and accumulates in areas of the brain that are active. It can measure the brain's metabolism, blood flow, and glucose uptake. It can also show the presence of abnormal protein deposits or inflammation that may be associated with conditions like Parkinson's or epilepsy.

Brain scans are valuable tools that can provide a lot of information about the health of the brain. However, they also have some drawbacks and limitations that should be considered before undergoing a scan. People who are interested in getting a brain scan for health screening should talk to their doctor about the benefits and risks of each type of scan and whether they are suitable candidates for them.

Benefits of brain scans for health screening

1. Helping doctors make an accurate diagnosis and choose the best treatment plan for each patient.
2. Helping patients make informed decisions about their health and lifestyle based on their risk factors and test results.
3. Helping researchers find new ways to prevent, treat, or cure brain diseases.

Risks of brain scan

Exposure to radiation: CT scans and PET scans use X-rays or radioactive tracers that emit ionizing radiation. This type of radiation can damage the Deoxyribonucleic acid (DNA) of cells and increase the risk of cancer over time. The amount of radiation from one scan is usually low, but repeated scans can add up.

Allergic reactions: Some people may have an allergic reaction to the contrast material or tracer used in some brain scans. These reactions can range from mild to severe and may include itching, rash, swelling, nausea, or difficulty breathing.

Claustrophobia: Some people may feel anxious or uncomfortable inside the scanner, especially if it is small or noisy. MRI scanners are particularly loud and may require ear protection. Some people may need sedation or medication to cope with their fear.

False positives or negatives: Brain scans are not perfect and may sometimes miss a problem or show something that is not a problem. This can lead to unnecessary worry or treatment, or delay the diagnosis of a serious condition.

Cost and availability: Brain scans can be expensive and may not be covered by insurance for screening purposes. They may also not be widely available in some areas or facilities.

Correspondence to: Reria Didik, Department of Neurology, University of Malaya, Kuala Lumpur, Malaysia, E-mail: didikreria@gmail.com

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