Brain scanning breakthrough brings new hope for people with epilepsy

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A breakthrough in brain imaging will lead to more people with epilepsy becoming candidates for neurosurgery – and may lead to advances in investigating the causes of dyslexia, stroke and dementia.

Researchers at the National Society for Epilepsy (NSE) and the Institute of Neurology have found that by using fMRI (functional Magnetic Resonance Imaging) scans doctors will be able to have a much clearer picture of the source of epileptic activity and reduce the risk the operation carries to language and memory problems.

More than 300,000 people in the UK have epilepsy making it the most common serious neurological disorder. At least 200,000 will have their seizures controlled by medicines but for the rest epilepsy can have a serious impact on their quality of life.

NSE's medical director Professor John Duncan said: "fMRI is an important breakthrough as we seek to improve the process of surgery planning. Advances in scanning technology are providing us with a more detailed picture of how the brain works. In due course we will be able to increase the number of people who might be suited to surgery."

Currently around 500 people a year in the UK have brain surgery in an attempt to control their epilepsy. By combining fMRI with EEG recordings of the brain's electrical signals or impulses doctors will have a much clearer picture of the source of epileptic activity leading to an increase in potential candidates for surgery.

fMRI will also be used to reduce the risk of post surgery language and memory problems by localising the area of the brain involved in these everyday functions. By comparing scans of patients performing tasks, such as reading, and then at rest, the brain regions can be identified and mapped. Similar fMRI tests may be used to investigate dyslexia and stroke patients with damage to speech areas.

Professor Duncan added: "Operating on the brain will never be risk free but these studies using fMRI should improve the outcome for many."
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