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A simple one-hour brain scan may be able to predict who will be helped by antidepressants and who will not.

Researchers have detected signs of changes to patients' brain waves weeks before they showed any visible benefits from taking medication.

The scientists, led by Dr Ian Cook from the University of California Los Angeles, say the method could minimise the waste of drugs on patients who are unlikely to respond positively.

“
This is the first study to detect specific changes in brain wave activity that precede the clinical changes
”

Dr Ian Cook

This is doubly important, as the drugs are expensive and can have side effects.

Dr Cook said: "This is the first study to detect specific changes in brain wave activity that precede the clinical changes in a way that can usefully predict response."

Up to 40% of depressed patients do not respond to the first medication they try.

Since it takes several weeks for an effective treatment to produce clear improvement, doctors often wait six to 12 weeks to decide

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that a particular medication just isn't right for that patient and move on to another treatment.

Placebo effect

Recent studies have also shown that patients may respond to dummy pills in much the same way they respond to antidepressants.

There is also evidence to suggest that psychiatric therapy may work at least as well as taking antidepressants.

The scientists used an EEG (electroencephalogram) to measure electrical activity in an area of the brain called the prefrontal cortex, which is involved in judgment and motivation.

“
It could potentially revolutionise the way in which patients with depression are treated
”
Depression Alliance

They detected changes in some cases just two days after patients began taking medication, even though clear clinical differences did not become apparent for about four weeks.

In total of 51 patients with acute depression took part in the study. They were given either Prozac, Effexor or a dummy pill.

Overall, 52% of the volunteers responded to one of the two drugs, while 38% responded to the placebo.

EEG scans picked up changes in activity in the prefrontal cortex in patients from all three groups who responded positively.

However, the changes took longer to appear in those patients who responded to the dummy pill.

And when they did come, they were different. Patients who responded to medication registered a decrease in prefrontal cortex activity, while those who responded to the placebo registered an increase in activity.

Distressing

The Depression Alliance welcomed the research, which it said looked "very promising".

A spokesperson said: "It could potentially revolutionise the way in which patients with depression are treated.

"We know that the hit and miss method currently used to find the right treatment can be a lengthy and distressing process for the patient, with some giving up before they have found the help they need.

"Most people find that a combination of talking treatments, self-help and medication often works best and we would hope that if the use of brain scans to predict treatment responses became common practice, the emphasis on a variety of treatments would not be lost.

The research is published in the journal Neuropsychopharmacology.

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