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Brain scan study shows how placebo aids depression

By Maggie Fox, Health and Science Correspondent

WASHINGTON, Jan 1 (Reuters) - Brain scans show that patients with depression have clear physical responses to both drugs and sugar pills, but the responses are dramatically different, researchers reported on Tuesday in a study that could help explain the ``placebo effect."

The study might show ways for doctors to use the placebo response -- when patients get better from a sham treatment or drug -- to improve standard treatments, said Dr. Andrew Leuchter, the psychiatrist at the University of California Los Angeles who led the study.

``People have known for years that if you give placebos to patients with depression or other illnesses, many of them will get better," he said in a statement.

``What this study shows, for the first time, is that people who get better on placebo have a change in brain function, just as surely as people who get better on medication."

The study also suggests that treating depression has two important parts -- the medications, and the very act of seeking treatment, Leuchter said.

``What our study suggests is that medications are effective in relieving symptoms and placebo can be effective for some patients in acute relief of symptoms but that they are working through different and perhaps complementary mechanisms," Leuchter said in a telephone interview.

``The placebo effect is something that is very physically distinct."

Leuchter and colleagues set out to find out what is going on in a patient's brain when given a placebo.

They gave 51 patients either an antidepressant or a placebo, and used a method called quantitative electroencephalography (QEEG) imaging to see what was happening in the brain.

DISTINCT CHANCES IN PREFRONTAL CORTEX

They saw distinct changes in the brain's prefrontal cortex. ``It's a region associated with regulation of mood," Leuchter said. ``Whether one is manic or depressed, this area of the brain commonly reflects mood state."

The antidepressants they used were Eli Lilly and Co.'s (NYSE:[LLY](#) - [news](#)) Prozac, known generically as fluoxetine, and Wyeth-Ayerst's (NYSE:[AHP](#) - [news](#)) Effexor, known generically as venlafaxine. Both work by boosting the level of the mood-enhancing chemical messenger serotonin in the brain.

``Overall, 52 percent of the subjects -- 13 out of 25 -- receiving antidepressant medication responded to treatment, while 38 percent -- 10 out of 26 -- of those receiving placebos responded," Leuchter's team wrote in the Jan. 1 issue of the American Journal of Psychiatry.

Both groups felt better.

``The immediate outcome was they were virtually indistinguishable," Leuchter said.

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``At eight weeks ... you couldn't tell them apart in terms of mood ratings. What happened at eight weeks plus a day is a bit different. Some of the placebo responders, when told they were on a placebo, had a deterioration of their mood. In fact, most of them did. Within a month, most of the placebo responders had enough depressive symptoms that they actually ended up on medications."

In other words, once people realized they were not taking real drugs, the placebo effect stopped.

The QEEG scans, interpreted through a computer, showed something even more interesting. ``Brain function changed at different rates," Leuchter said.

``The medications' effect was virtually immediate. Within 48 hours, we saw there was suppression of prefrontal activity in medication responders. It was an immediate and dramatic effect of medication."

But it took two weeks for any changes to be seen in the brains of people who responded to placebo, and when the change did come, it was an increase of activity in that part of the brain, not the decrease seen with the drugs.

DIFFERENT PATHWAYS TO GETTING BETTER

``These findings show us that there are different pathways to improvement for people suffering from depression," Leuchter said. ``Medications are effective, but there may be other ways to help people get better. If we can identify what some of the mechanisms are that help people get better with placebo, we may be able to make treatments more effective."

Leuchter said that in depression, deciding to get treatment -- whether a drug, an herb such as St. Johns Wort, or other treatments on the market -- may be half the battle.

``First of all, they made a decision to come in for treatment," he said. ``They were prepared to get well. They came in, they actually got engaged with somebody. They started talking with staff, with nurses, with the physician. They got a lot of extra attention."

Last month, a study in the Journal of the American Medical Association found that the three leading antidepressant drugs -- Prozac, Zoloft and Paxil -- work equally well.

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