News
The University of Texas Health Science Center at Dallas
5323 Harry Hines Boulevard Dallas, Texas 75235 (214)688-3404

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CONTACT: Ann Williams
Office: 214/688-3404
Home: 214/375-6043

******Depression is a physiological state, says psychiatrist at human research symposium.

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DALLAS--Depression is a biological state. But even so, it can be treated by nonbiological methods, says Dr. John Rush, associate professor of psychiatry at The University of Texas Health Science Center at Dallas.

In delivering the first annual Robert M. Boyar Memorial Lecture, "The Physiological Basis of Depression," at a symposium on human research today, Rush reported that a number of findings point toward a physiological basis of depression. He emphasized that he was speaking of the depression syndrome (symptom pattern), not simply the mood. The depressive syndrome includes specific symptoms and signs such as: increased feelings of guilt and suicidal thinking, difficulty in concentration coupled with decreased weight, appetite, sleep and sexual desire, decreased energy, as well as a depressed, sad or anxious mood.

Research results from various investigators all over the country pointing toward the biological depression in the brain include:

* Biological treatment--medication and/or electroconvulsive (electric shock) therapy reduces symptoms of the syndrome and prevents recurrence in many patients.
* Anti-depressant drugs vary in their effects on patients. These drugs have specific biological effects. Some patients are helped by one drug, while other patients respond to different agents.
* The amount of a drug and the length of time it is prescribed influence how the patient will respond.
* Specific drugs (given for other illnesses) and medical illnesses (such as hypothyroidism, hyperthyroidism, brain tumors and others) can cause depression. "These are clear-cut biological causes," said Rush.

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* Genetic studies suggest that if one family member suffers from depression, others are more likely to be vulnerable to depression. Also family members with depression are more likely to respond favorably to the same drug.
* Patients with depressive syndrome can be divided into different groups on the basis of measurements of certain metabolites (biochemical products) found in the urine or brain-spine fluid or based on brain wave patterns during sleep. These measurements may indicate which drug will affect the patient.
* There is some evidence that these same biological measurements may tell when the patient has fully responded to therapy. Further, they hold the promise of predicting a relapse of depression before it can be seen clinically.

Rush compared the biological check-up to that of a patient with diabetes. "You would measure the blood sugar to find out when the right dose of insulin is being given. It's not just when the person doesn't fall over in the street any more--it's when the blood sugar is 100 to 200 after such-and-such a time. That's what we're getting to with depression. It's not just that now you can smile and feel better. It's very specific," he said.

"Studies of the neuroendocrine system, whether the pituitary gland makes too much ACTH or too little, and of the sleep EEG (electroencephalogram), and of a variety of other biological measures--help us to understand the biological basis for depression to identify specific types of depression, and hopefully, will help us wisely select the correct drug or to recommend psychotherapy. If you can subdivide the disorders with biological measures, then there must be a biology to the disorder. Otherwise, you couldn't do that."

The psychotherapy that Rush has helped develop is called cognitive therapy. This treatment is a short-term structured therapy designed to change the patient's minute-to-minute thinking patterns, the nature of the information that the brain processes. It helps patients change the way they think about themselves, the world and the future.

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The cognitive theory of depression was first proposed in 1967 by Dr. Aaron T. Beck, professor of psychiatry at the University of Pennsylvania. Rush has worked with Beck since the early '70s, and next month they along with two colleagues will publish Cognitive Therapy of Depression, a guide that explains how this therapy is conducted.

From studies on depressed patients in the General Clinical Research Center, Rush's Affective Disorders Unit is beginning to identify which patients require drugs and which require psychotherapy. He compares psychotherapy for depression with non-biological therapy for heart disease. If a patient had a heart attack, digitalis would improve the heart's capacity to pump blood. In addition, changes in exercise and diet can also improve the heart's capacity to respond. Thus, these nonpharmaceutical treatments must also modify the heart's chemistry since they modify its function.

Similarly, psychotherapy can also influence how the brain works. A brain functions much like a computer that can rewire itself based on the information it gets. If psychotherapy can change how information is provided to the brain, it can, in theory, change the brain itself--its function and thus its biology. "The question involving depression is, do you modify what's going into the computer (the information) or do you try to modify the chemical processes directly with drugs," said Rush. Future research with biological measurements holds the promise of predicting which type of therapy will be best for a patient.

Rush came to the health science center last year from the University of Oklahoma. He received his M.D. at Columbia College of Physicians and Surgeons and did his residency at the University of Pennsylvania.

The lecture is named for Dr. Robert M. Boyar, a noted endocrinologist on the faculty at UTHSCD, who died last year.

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