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Bloomberg News

Addiction to Natural Opioids May Drive Chronic Pain, Study Says

By Elizabeth Lopatto September 19, 2013

Chronic pain may be a symptom of addiction to natural opioids produced in the body, according to a study in mice.

Scientists caused inflammation in the paws of mice, allowed it to fade and then blocked the animals' opioid receptors so the natural painkillers wouldn't work. That led to withdrawal-like behaviors, as well as pain and the neural activity associated with pain, even 6 months after the injury, according to a report on the study in the journal Science.

It may be there's a quiet battle between the internal painkillers and the pain pathways, said study author Brad Taylor, a pain pharmacologist at the University of Kentucky. As the body becomes dependent on its internal analgesics, the pain pathways become more sensitive. Exploring these pathways may explain why some people develop chronic pain.

"We thought the injury was producing activation of the pain pathways for much longer than previously thought," Taylor said in a telephone interview. Instead, the body's own painkillers were camouflaging the increased pain sensitivity.

In the experiment, mice given an opioid blocker experienced the shaking and tremors seen in addicts when they stop taking drugs. What's more, they saw increased activity in a certain enzyme, consistent with opioid withdrawal.

Common Disability

Not everyone develops chronic pain after a severe injury, he said. Only about 10 to 20 percent of patients experience it. Chronic pain, defined as pain lasting more than 3 months and beyond a recovery period of injury, is the most-common cause of long-term disability, according to the National Institutes of Health. About 100 million Americans experience it, according to a report from the National Academies.

Stress and depression may play a role, Taylor said.

"Stress means people are more likely to have chronic pain, the same with depression," said Taylor. That's because both stress and depression disrupt the action of a key receptor that helped to inhibit suffering in the mice, he said.

Future studies should examine the relationship between the competing pain signaling systems -- the one that senses pain and the one that dulls it, Taylor said. Understanding the connection may point to better therapies for chronic pain conditions, he said.

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