AAPM: State of Mind Can Turn Acute Pain to Chronic

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Review

WASHINGTON -- Thinking of events as a catastrophe, fear, and being depressed appear to be major predictors of whether acute pain from surgery or injury will morph into chronic pain, researchers reported here at the annual meeting of the American Academy of Pain Medicine.

For patients with low back pain, prospective longitudinal studies have shown that "catastrophizing has been found to be seven times more powerful than any other predictor in predicting the transition from acute to chronic pain," said Sean Mackey, MD, PhD, chief of the pain management division at Stanford University.

Fear also appears to play a role, Mackey commented.

"Those who had more fear during an acute low back pain episode were much more likely to ultimately over-predict the amount of pain they had, which ultimately led to significant increase in fear-avoidance behaviors, with subsequent worsening of symptoms, increase in duration of pain, and increase in disability," he said.

Depression and anxiety also had similar effects. "From a comorbidity standpoint, about 30% to 65% of patients who have chronic pain also have comorbid depression," Mackey added. "Epidemiological studies have shown that patients who have comorbid depression and anxiety are two to five times more likely to develop chronic pain one to eight years down the line."

Interestingly, when researchers prod or poke patients with depression, "they actually feel less pain than healthy controls," Mackey noted.

"We think there's something going on in their central nervous system -- not that they're more sensitive to pain, but they're much more set up to have persistence of pain after an injury."

However, for postoperative pain, the evidence is much weaker, Mackey noted. "There are not many studies that systematically look at factors and biomarkers that cause someone to transition from acute to chronic pain during the postop period."

Mackey did cite one study of 625 patients undergoing elective surgery which found that fear of the long-term consequences of the operation was associated with more pain, poor global recovery, and worse quality of life at six months' follow-up -- while being optimistic was linked to better recovery and higher quality of life (Annals of

Fear of pain, as well as anxiety, appear to be associated with responses in the brain, according to Mackey.

When he and his colleagues gave a fear of pain and anxiety sensitivity index questionnaire to a group of patients several years ago, and then provoked pain in the group, "we got an insanely high correlation between fear of pain and [activity in] an area of the brain known as the lateral orbital frontal cortex -- an area involved with the self-evaluation of incoming inputs and making decisions about what to do about them."

The researchers also found a very similar correlation with anxiety sensitivity. "How much anxiety do you have to a bodily sensation, when you're on your fourth Starbucks double-shot latte and you get a little heart palpitation? It correlates almost perfectly with [activity in] the medial prefrontal cortex."

That area of the brain is an area of hot study right now, "because it is the same area found to be dysfunctional in people with post-traumatic stress disorder and generalized anxiety disorder," Mackey said.

"What is unclear is whether that pain ends up causing these people to have these fundamental changes in the prefrontal cortex, or are people set up and individually predisposed? We're trying to figure that out right now," he added.

Whatever the cause, there are several medications thought to work off-label to help reduce postoperative pain, including gabapentin/pregabalin and ketamine.

"Gabapentin and pregabalin have met Level A evidence for reducing pain after surgery -- the data [are] unambiguous," Mackey said. "They also work synergistically with Cox-2 inhibitors."

More recently, a study of pregabalin looking at neuropathic pain three and six months after surgery showed a significant reduction in the development of neuropathic pain compared with placebo, as well as improvement in the functional active range of motion, he added.

"So put someone on a gabapentinoid before surgery, and it's not only going to reduce their pain -- it may reduce the duration of pain, and it looks like it may also improve function," Mackey commented.

The question is, why does gabapentin work?

"We think of this as a pain medication, but a number of studies are showing that gabapentin is an anxiolytic," he speculated. "Is it working because it's reducing pain or because it's reducing anxiety, and through that reducing the persistence of pain? We don't know."

Ketamine is used as a general anesthetic and also abused on the street (with a nickname of "Special K"), Mackey noted. But evidence is more ambiguous in favor of its use at subanesthetic levels for chronic pain.
With 34 million surgeries taking place in the U.S. each year and 10% of surgical patients going on to have chronic pain, "we're creating an epidemic of chronic pain patients every year," he said -- adding that much work remains to be done to figure out how to help these patients.

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