

Pain Level After Car Crash Could Depend on Your Genes, Studies Say

Findings might lead to better treatment for people with less obvious injuries

TUESDAY, Oct. 16 (Health Day News) -- The amount and severity of pain that you experience after an automobile accident may depend on your genes, early new research suggests.

In two studies based on data collected from 948 adult car accident victims, scientists from the University of North Carolina found that inherited genetic variations affected participants' response to pain intensity, both immediately following the accident and six weeks later.

"The findings are important because currently patients who experience persistent pain, who don't have things you can see that are obviously damaged, are often viewed with lots of suspicion and they don't get the treatment they need," said senior study author Dr. Samuel McLean, an assistant professor of anesthesiology. "This shows a biologic basis for the development of these symptoms."

The studies are scheduled to be presented Tuesday at the American Society of Anesthesiologists (ASA) annual meeting in Washington, D.C.

Previous research has suggested that pain after a car accident isn't due solely to tissue damage from trauma but may also be strongly influenced by physiologic systems involved in the body's response to the collision, study authors said. Participants in the current research provided a blood sample after being treated in a hospital emergency room and were also evaluated for extent and severity of pain at the emergency visit and six weeks later.

The first study examined the role of dopamine -- a neurotransmitter that helps regulate pain processing. It found that genetic variants associated with the dopamine receptor 2 contribute to the pain severity felt in the immediate aftermath of a collision.

The second study evaluated the role of a hormonal system known as the hypothalamic-pituitary adrenal axis, which helps regulate the body's response to stressful events. It found that a gene variant was linked to a 20 percent higher risk of moderate to severe neck pain six weeks after a collision, as well as greater body pain.

"The one thing we're learning is that the physiological machinery that's activated when one is exposed to a life-threatening situation, such as a car crash or a very stressful situation, can lead to persistent pain if things don't go just right," McLean said. "For car crashes, historically, the whole challenge has been . . . if something is wrong with [patients], we would be able to see it, find it on an X-ray or MRI scan, and that discussion continues. But we missed this important point -- there's a whole biology that can cause pain that has nothing to do with broken bone or torn muscle."

The research may eventually open doors to new ways of tailoring pain treatments to each patient to better ease their suffering, said Dr. John Dombrowski, director of the Washington Pain Center in Washington, D.C.

"I think it's fascinating because I'm a clinician who's in the trenches taking care of patients," said Dombrowski, also chair of the ASA's committee on communications. "This kind of information helps me make sense of how to better deliver care."

Study author McLean cautioned, however, that the studies represent a broad first step toward individualizing pain care, noting that identifying the biology of pain is a huge accomplishment in itself.

"We're in much more the early stages, where we're trying to figure out the biology of this illness and then, later on, how that biology varies from person to person," he said.

By Maureen Salamon
HealthDay Reporter