Rapid screening test predicts effectiveness of steroid injections for neck pain

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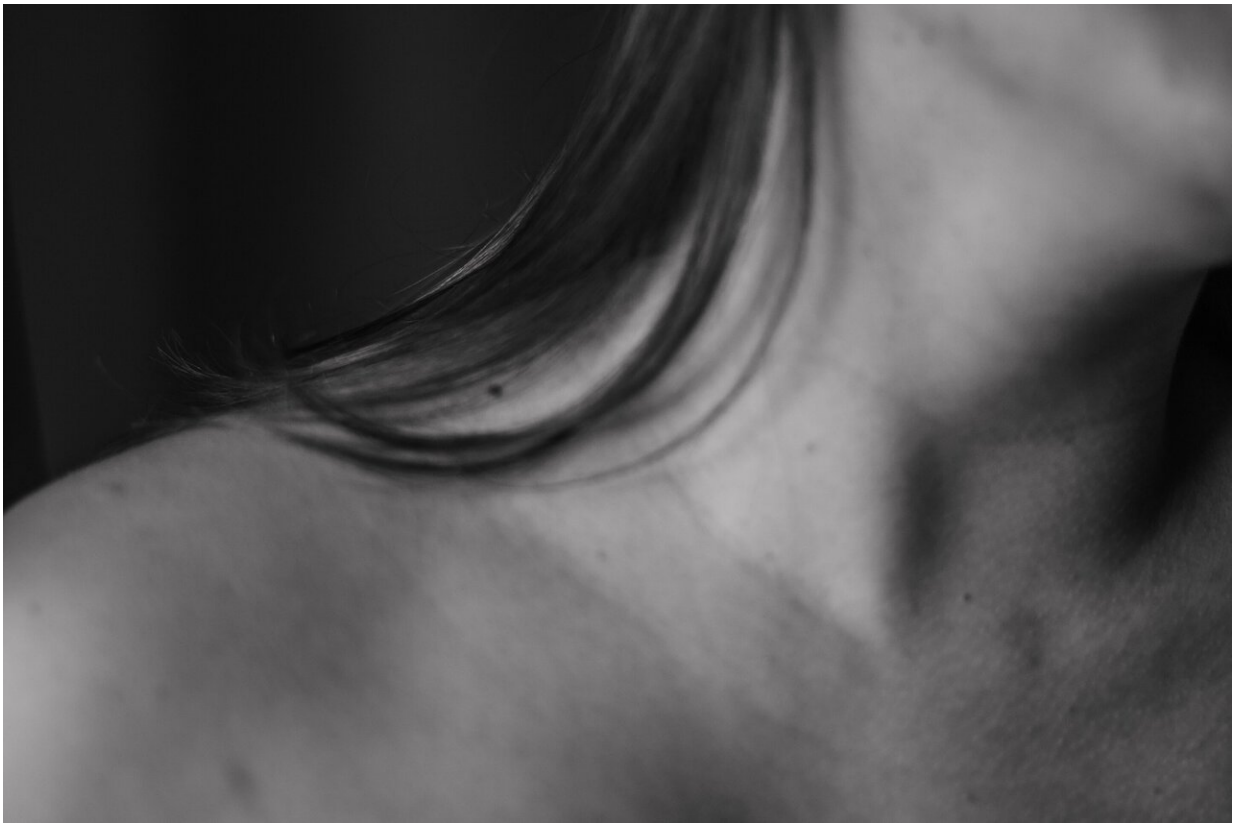

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Researchers from Johns Hopkins Medicine and several other institutions say they have developed a quick clinical test that predicts which people with neck pain are more likely to benefit from epidural steroid

injections, which deliver drugs directly around the spinal nerves to stop nerve inflammation and reduce pain.

The uncomfortable injections are a common treatment for neck pain, but can cost hundreds of dollars each; carry risks, and help only a minority of patients, studies show. A new variation on physical exam, as described Feb. 15 in *Mayo Clinic Proceedings* among 78 people with neck pain, could help guide best use of the treatment.

"Until now, it was really a 50/50 coin flip whether an epidural steroid injection would help any given neck pain patient," says Steven P. Cohen, M.D., professor of anesthesiology and critical care medicine at Johns Hopkins University School of Medicine. "We looked at many different variables and believe we've figured out a quick and reliable way to provide patients with much more accurate, personalized information on their chances of getting better, and actually improve their odds of treatment success."

According to the American Medical Association, back and neck pain are among the ailments that incur the highest amounts of total health care spending in the United States. Each year, doctors administer more than 10 million epidural steroid injections for back and neck pain. Injected steroids can reduce the swelling and pressure on nerves that contribute to pain.

However, the underlying causes of back and neck pain are diverse, and not all patients experience pain relief from the injections. As a result, the procedure is facing increased scrutiny by hospital systems and insurers, fueling a search for ways to better identify patients most likely to benefit.

In the new study, Cohen and collaborators adapted Waddell signs—a group of eight physical signs, named for the physician who developed

them, more than 50 years ago, as a tool to identify patients whose back pain may not be due to physical abnormalities that can be treated surgically —for neck pain patients.

The signs, which can be assessed in a few minutes by a clinician, include checking for tenderness; overreaction to light stimulation; weakness not clearly explained by any physical injury or abnormality; pain that disappears when the patient is distracted; and pain that extends beyond expected areas of the body.

"These physical exam maneuvers are incredibly simple to perform and easy to identify," says Cohen.

For back pain, Waddell signs are used primarily to determine whether back pain is nonorganic (not associated with a direct anatomic cause). Previously, many clinicians interpreted these signs as indicative of malingering or psychological factors. More recently, however, researchers have shown that such nonorganic signs may also point to complex underlying causes of pain. In general, studies have shown that back pain patients with more Waddell signs are less likely to benefit from treatment.

To conduct their new study, clinicians at The Johns Hopkins Hospital, Walter Reed National Military Medical Center, the District of Columbia Veterans Affairs Medical Center and Seoul National University, in Korea examined 78 neck pain patients for the eight nonorganic physical signs before treating them with epidural steroid injections. Overall, 29% (23) of the patients showed no nonorganic signs; 21% (16) had one nonorganic sign; and 50% (39) of patients had two or more signs before injections.

One month later, patients whose pain was still decreased by the epidural steroid injection had, on average, just 1.3 nonorganic signs, while those

whose pain was not decreased at the one-month mark had, on average, 3.4 nonorganic signs.

Some of the individual Waddell signs were highly correlated with a lack of response to the injections. For example, 55% of injection nonresponders showed apparent overreactions to light touch, while only 11% of those helped by the injections showed this sign. The researchers also found that people with more non-organic signs associated with their neck pain were more likely to report chronic pain in other areas of the body, as well as fibromyalgia and psychiatric conditions.

Cohen says it appears that the presence of multiple nonorganic signs are identifying patients who might benefit from other treatment approaches, before trying epidural steroid injections. "But further research must be done to determine the best options."

For now, Cohen says the findings can immediately help guide conversations between patients with neck pain and their doctors, when weighing the potential risks and benefits of an epidural steroid injection.

More information: Steven P. Cohen et al, Nonorganic (Behavioral) Signs and Their Association With Epidural Corticosteroid Injection Treatment Outcomes and Psychiatric Comorbidity in Cervical Radiculopathy: A Multicenter Study, *Mayo Clinic Proceedings* (2023). DOI: 10.1016/j.mayocp.2022.11.022

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