Simple bedside test improves diagnosis of chronic back pain, could guide treatment

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A simple and inexpensive method of assessing pain, developed by Massachusetts General Hospital (MGH) researchers, is better than currently used techniques for distinguishing neuropathic pain - pain caused by damage to the nervous system - from other types of chronic back pain. Being able to more precisely determine the underlying nature of the pain is essential to choosing the best treatment. The report appears in the April 7 issue of the open-access journal *PLoS Medicine*.

"Currently clinicians measure pain only by asking how bad it is, using scales from mild to moderate to severe or asking patients to rate their

pain from 1 to 10," says Joachim Scholz, MD, of the Neural Plasticity Research Group in the MGH Department of Anesthesia and Critical Care, lead author of the study. "This approach misses key characteristics that reflect the mechanisms causing the pain."

Clifford Woolf, MD, PhD, director of the Neural Plasticity Research Group and senior author of the article, adds,"By evaluating individual components of pain, our method allows the creation of a 'pain fingerprint' for each patient."

In order to identify specific symptoms and signs that could signify underlying pain mechanisms, the investigators first enrolled a group of 187 patients with chronic pain caused by a known condition. Some patients had neuropathy associated with diabetes or shingles, and others had low back pain with or without evidence of spinal nerve root damage. These participants received an extensive medical history and physical examination, including 23 simple tests that could be conducted at the bedside or in an office visit. Distinct association patterns of pain-related symptoms and signs allowed the classification of six subgroups of patients with neuropathic pain and two subgroups with nonneuropathic pain.

Based on a detailed analysis of these results, the team developed the Standardized Evaluation of Pain (StEP) - a set of 6 questions and 10 physical tests that best discriminated between neuropathic and nonneuropathic pain. To test the validity of StEP, they collaborated with researchers from Addenbrooke's Hospital, a teaching hospital of the University of Cambridge in the United Kingdom, who enrolled 137 patients with chronic low back pain. To determine whether or not their pain was neuropathic, patients were evaluated by an interdisciplinary team of two physicians (a neurosurgeon and a rheumatologist) and a physical therapist. Participants then received the StEP assessment from a specially trained investigator not informed of the results of the clinical

evaluation.

Not only was the 10- to 15-minute StEP assessment able to accurately determine whether or not a participant's back pain was neuropathic, it also was superior to an existing screening test for neuropathic pain and even to MR imaging of the spine, which can be misleading since many people have visible degeneration of spinal disks with little or no pain.

Scholz explains, "The treatment of neuropathic and nonneuropathic pain is quite different, and if a diagnosis is wrong, patients may receive treatment, including surgery, that does not improve their pain. We showed that StEP is a valuable diagnostic tool for low back pain and will conduct further studies to determine the usefulness of our clinical approach in other types of pain. The critical test will be seeing how patients with different subtypes of pain respond to different treatments, something we hope to examine in the very near future."

"There is enormous interest from the Obama administration and the National Institutes of Health in evaluting the efficacy of competing medical treatments" says Woolf. "We compared the sensitivity and precision of different diagnostic tools and produced a low-tech approach that is superior to a standard high-tech imaging approach, showing how evidence-based medicine can both improve the practice of medicine and reduce cost." By publishing StEP as a supplement to the *PLoS Medicine* article, the research team is making the assessment broadly available to clinicians.

Source: Massachusetts General Hospital (news : web)

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