Evidence in Action

Is There an Efficient Tool to Help Identify Neuropathic Pain?
By Robert D. Vining, DC

Abstract: In this column, educators and researchers from Palmer College of Chiropractic explore questions of clinical interest to *JACA* readers. These authors will offer tips on weighing and making good use of evidence as part of the everyday practice of chiropractic.

A patient presents with radiating pain
Patients occasionally describe symptoms suggesting the possibility of pain from more than one condition. Consider a patient who has low-back pain with radiation. Is the radiation due to nerve root inflammation, compression, or other neural dysfunction (neuropathic pain)? Is it caused by muscle or joint inflammation or injury (nociceptive pain)? Or could it be from peripheral arterial disease (ischemic pain)? You need to efficiently examine, diagnose, and report findings; offer recommendations, generate treatment plans, obtain consent, deliver care, and document it. If a reliable and efficient diagnostic aid is available, it could streamline your process. Is there a useful diagnostic tool that helps differentiate neuropathic from nociceptive pain?

An evidence-based consideration:
A PubMed search using the terms leg pain AND neuropathic pain AND low-back pain AND diagnosis locates several articles. One article title may catch your eye because it contains the words "neuropathic pain screening tools."

You decide to read the following article:
Walsh J, Rabey MI, Hall TM. Agreement and correlation between the self-report Leeds assessment of neuropathic symptoms and signs and Douleur Neuropathique 4 Questions neuropathic pain screening tools in subjects with low back-related leg pain. *J Manipulative Physiol Ther*. 2012 Mar-Apr;35;(3):196-202.

Diagnostic tool comparison:
Walsh and colleagues conducted a clinical observational study where two neuropathic screening tools were compared to determine diagnostic agreement with low-back pain (+ leg pain) patients.[1] The tools compared were the S-LANSS (Self-report Leeds Assessment of Neuropathic Symptoms and Signs)[2] and the DN4 (Douleur Neuropathique 4 Questions).[3,4] Both tools are validated diagnostic screens that help differentiate neuropathic from nociceptive pain. The S-LANSS has 7 questions, 2 of which require self-examination. The DN4 is composed of 4 questions, 2 of which require clinical examination. Both tools are similar with questions and examination findings focusing on sensation characteristics, e.g., tingling, itching, burning, numbness, electric shock-like, hyper/hypoalgesia, and allodynia (painful sensation with nonpainful stimuli).

Walsh and colleagues recruited 45 patients referred to hospitals by general practitioners for evaluation and management of low-back pain. Patients completed the S-LANSS and self-report section of the DN4. An independent examiner (blind to the self-report answers) performed and answered the 2 DN4 examination questions. Another independent examiner scored the questionnaires and determined the presence or absence of neuropathic pain based on cutoff scores of 12 (S-LANSS) and 4 (DN4). The authors then compared the neuropathic vs. nociceptive pain classification of both tools.

Results and limitations
Investigators found fair agreement and moderate-to-good correlation between the S-LANSS and the DN4. Although the tools are very similar, the investigators postulate that because 1 screening tool includes 2 examination findings (hypoesthesia and increased pain) when brushing

the painful area [DN4]) and 1 includes only patient-reported information (S-LANSS), the difference is probably responsible for fair rather than excellent agreement. In addition, validation of these instruments occurred in different patient populations. Therefore, it is not surprising that comparing these two tools results in less than excellent agreement.

Despite less than perfect agreement between the S-LANSS and the DN4, both identify approximately 80 percent of patients with neuropathic pain. Current diagnostic criteria for neuropathic pain are based on sound theoretical principles and physiological evidence (construct validity). However, no objective test is available to confirm a diagnosis. Therefore, the reference standard used to validate these tools is expert clinician diagnosis. Expert diagnosis tends toward error and inconsistent interpretation, leaving it somewhat lacking as a reference standard. Nevertheless, it is the best reference standard currently available.

Is this information useful for me?

Because the Walsh article compares agreement between 2 diagnostic screening tools, it may not answer your original question: "Is there an efficient tool to help identify neuropathic pain?" When an article doesn't quite answer your question, a good strategy is to review other publications by authors referenced in the paper. In this case, looking at articles authored by Bennett and Bouhassira (developers of the S-LANSS and DN4) can help you focus your search for an answer. PubMed searches for articles published by these authors reveal 2 publications focused on available neuropathic screening tools:
1. Bouhassira D, Attal N. Diagnosis and assessment of neuropathic pain: The saga of clinical tools. *Pain* 2011 Mar;152(3). Suppl):S74-S83.[5]

2. Bennett MI, Attal N, Backonja MM, Baron R, Bouhassira D, Freynhagen R, Scholz J, Tolle TR, Wittchen HU, Jensen TS. Using screening tools to identify neuropathic pain. *Pain* 2007 Feb;127(3):199-203.[6]

Both articles describe and compare 5 validated screening tools and their application in both clinical and research settings. They include information on diagnostic sensitivity, test questions, scoring, key definitions, and use in daily practice. They also provide examples of cases for which these tools were not designed, such as patients with widespread or multiple pain locations (e.g., fibromyalgia).

Given that these screening tools take only a few moments to complete and incorporate into an examination, and that they help differentiate nociceptive from neuropathic pain in approximately 80 percent of appropriate cases, your question may now change to "Which screening tool should I use to aid my differential diagnosis?" The 2 articles found in your second PubMed search[5,6] will very likely provide the information you need for this evidence-informed decision.

Sometimes, as described here, searching for an answer to 1 question leads you along a "literature trail." That "trail" may guide you along a path you did not anticipate and toward a different or more appropriate question. Regardless of whether you choose to incorporate a neuropathic screening tool into your practice, your search should arm you with more information and strengthen your evidence-based decisions.

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References

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