

Issue Number SP1, 2009

Series Editor: Marie Boltz, PhD, GNP-BC

Series Co-Editor: Sherry A. Greenberg, MSN, GNP-BC

New York University, College of Nursing

Assessment of Nociceptive versus Neuropathic Pain in Older Adults

By: Paul Arnstein, PhD, RN, ACNS-BC, FNP-C

Clinical Nurse Specialist for Pain Relief, Massachusetts General Hospital
Past President, American Society for Pain Management Nursing

WHY: Many older adults have severe or ongoing pain. Distinguishing whether the pain is nociceptive or neuropathic has important implications for diagnostic, lifestyle and treatment decisions. Nociceptive pain is caused by an active illness, injury and/or inflammatory process associated with actual or potential tissue damage. Recognition of nociceptive pain can help identify an acute condition (e.g. angina, temporal arteritis, thrombosis, torn ligament) demanding prompt treatment, or a chronic condition (e.g. arthritis, osteoporosis) guiding treatment to halt tissue damage. Neuropathic pain results from a lesion or a malfunction within the nervous system. High intensity neuropathic pain interferes with daily living and has been linked to a loss of muscle, bone and brain mass. Older adults are at greater risk for developing neuropathic pain because of fewer inhibitory nerves, lower endorphin levels and a slowed capacity to reverse processes that sensitize nerves. For example, postherpetic neuralgia develops in half of those over age 70, compared to 3% under 60 years old.

BEST TOOLS: Several tools are available to distinguish nociceptive from neuropathic pain. Tools that combine self-report and physical examination are more precise than self-report alone. Validation of the following three tools has included some, but not large numbers, of older adults. The Leeds Assessment of Neuropathic Symptoms and Signs (LANSS) was the first of the tools to be developed. The Douleur Neuropathique en 4 questions (DN4) was developed in French and translated into English (called the Neuropathic Pain Diagnostic Questionnaire or DN4). The DN4 is easiest to score and, hence, possibly the best tool to use. The Neuropathic Pain Questionnaire (NPQ) asks about pain, but does not include physical examination measures and is, therefore, not as highly recommended.

TARGET POPULATION: Older adults with pain from an uncertain source or with persistent pain despite treatment attempts.

VALIDITY AND RELIABILITY: The three tools described have demonstrated good validity (face, discriminant, content, construct) and reliability (internal consistency, test-retest, interrater). The LANSS Pain Scale has seven items (5 symptoms and 2 physical exam findings) to determine if pain is nociceptive or neuropathic. After its original validation with 100 patients, it has been tested and used on thousands of people, including a validated self-completed epidemiological tool believed accurate in 75-80% of cases (sensitivity 85%, specificity 80%). The DN4 was validated in French and translated into English using appropriate procedures. It is comprised of 10 items (7 symptoms and 3 clinical examinations) and is easy to score with each item equally weighted with a score of 4 or more classifying the pain as neuropathic. The DN4 has a higher sensitivity (83%) and specificity (90%) than the other tools described. The NPQ rates its 12 items (10 sensations and 2 emotions) on a scale of 0-100. It asks about the degree to which pain is unpleasant or overwhelming, questions not addressed by the other tools described. Although it correctly classifies patients with neuropathic pain 70% of the time (sensitivity 66%, specificity 74%) a subset of 3 items (numbness, tingling and allodynia) accounts for most of its accuracy. Because this tool is long, with complex math involved, it is not shown here. However, knowing the importance of numb, tingling and allodynia findings on assessment make it worthy of mention.

STRENGTHS AND LIMITATIONS: Although the three tools described distinguish nociceptive from neuropathic pain, the LANSS and DN4 are preferred because of their brevity and the integration of self-reported symptoms and physical examination.

FOLLOW-UP:

These tools are generally used once and are repeated periodically (e.g. annually) to screen for, and help differentiate types of pain. Nurses should discuss their findings with interdisciplinary team members to help guide therapy that is more likely to respond to the patient's specific type of pain. Distinguishing pain types by linking signs, symptoms and responses remains an active area of research. As underlying mechanisms of pain are better understood, targeted therapies are being developed to minimize treatment failures and expedite relief, especially for those with neuropathic pain.

MORE ON THE TOPIC:

Best practice information on care of older adults: www.ConsultGerRN.org.
 Bennett, M.I. (2001). The LANSS Pain Scale: The Leeds assessment of neuropathic symptoms and signs. *Pain*, 92(1-2), 147–157.
 Bennett, M.I., Attal, N., Backonja, M.M., et al. (2007). Using screening tools to identify neuropathic pain. *Pain*, 127, 199-203.
 Bennett, M.I., Smith, B.H., Torrance, N., & Potter, J. (2005). The S-LANSS score for identifying pain of predominantly neuropathic origin: Validation for use in clinical and postal research. *The Journal of Pain*, 6(3), 149–158.
 Bouhassira, D., Attal, N., Alchaar, H., et al. (2005). Comparison of pain syndromes associated with nervous or somatic lesions and development of a new neuropathic pain diagnostic questionnaire (DN4). *Pain*, 114(1-2), 29-36.
 Cruccu, G., & Truini, A. (2009). Tools for assessing neuropathic pain. *PLoS Medicine*, 6(4) e1000045. Retrieved August 11, 2009 from <http://www.plosmedicine.org/article/info:doi/10.1371/journal.pmed.1000045>.
 Gilron, I., Watson, C.P.N., Cahill, C.M., & Moulin, D.E. (2006). Neuropathic pain: A practical guide for the clinician. *Canadian Medical Association Journal*, 175(3), 265-275.
 Hadjistavropoulos, T., Herr, K., Turk, D.C., et al. (2007, Jan). An interdisciplinary expert consensus statement on assessment of pain in older persons. *The Clinical Journal of Pain*, 23(1 Suppl), S1-S43.
 Krause, S.J., & Backonja, M.M. (2003). Development of a Neuropathic Pain Questionnaire. *The Clinical Journal of Pain*, 19(5), 306–314.

LANSS Pain Scale

Symptom / Sign	Score for "yes"
Does the pain feel like strange unpleasant sensations? (e.g. pricking, tingling, pins/needles)	5
Do painful areas look different? (e.g. mottled, more red/pink than usual)	5
Is the area abnormally sensitive to touch? (e.g. lightly stroked, tight clothes)	3
Do you have sudden unexplained bursts of pain? (e.g. electric shocks, 'jumping')	2
Does the skin temperature in the painful area feel abnormal? (e.g. hot, burning)	1
Exam: Does stroking the affected area of skin with cotton produce pain?	5
Exam: Does a pinprick (23 GA) at the affected area feel sharper or duller when compared to an area of normal skin?	3
0 - 12 = likely nociceptive, Score > 12 likely neuropathic	Total:

Adapted from: Bennett, M.I. (2001). The LANSS Pain Scale: The Leeds assessment of neuropathic symptoms and signs. *Pain*, 92(1-2), 147–157. Appendices A and B, pp. 156-157.

Note: This is a smaller sample of the actual scale. For further instructions on the correct use of the scale please contact the International Association for the Study of Pain @; iaspdesk@iasp-pain.org.

DN4 Questionnaire

Symptom / Sign	No = 0 Yes = 1
Does the pain have the following characteristic? Burning?	
Does the pain have the following characteristic? Painful cold?	
Does the pain have the following characteristic? Electric shocks?	
Does the area of pain also have the following? Tingling?	
Does the area of pain also have the following? Pins & needles?	
Does the area of pain also have the following? Numbness?	
Does the area of pain also have the following? Itching?	
Exam: Decrease in touch sensation (soft brush)?	
Exam: Decrease in prick sensation (von Frey hair #13)?	
Exam: Does movement of a soft brush in the area cause or increase pain?	
0 – 3 = likely nociceptive pain ≥4 = likely neuropathic pain	Total:

Adapted from: Bouhassira, D., Attal, N., Alchaar, H., et al. (2005). Comparison of pain syndromes associated with nervous or somatic lesions and development of a new neuropathic pain diagnostic questionnaire (DN4). *Pain*, 114(1-2), 29-36. Appendix B, p. 36.

Note: This is a smaller sample of the actual questionnaire. For further instructions on the correct use of the questionnaire please contact the International Association for the Study of Pain @; iaspdesk@iasp-pain.org.



A SERIES PROVIDED BY
The Hartford Institute for Geriatric Nursing
 EMAIL: hartford.ign@nyu.edu
 HARTFORD INSTITUTE WEBSITE: www.hartfordign.org
 CONSULTGERIRN WEBSITE: www.ConsultGerRN.org