Editorial

Screening tools for neuropathic pain

Neuropathic pain (NP) is a special type of pain which arises as a direct consequence of a lesion or disease affecting the somatosensory system.[1] It comprises a large group of neurological conditions, including diabetic neuropathy, other polyneuropathies, trigeminal neuralgia, postherpetic neuralgia, post-stroke pain, multiple sclerosis, and spinal cord injury, as well as common conditions, such as radiculopathies, traumatic nerve injuries and cancer related pain. NP is a common debilitating problem in clinical practice. Compared to nociceptive pain, NP is often refractory to common analgesics and treatment, and patients with NP suffer from more pain severity, greater costs, and relatively impaired quality of life.

In western countries, the prevalence of NP in the general population is estimated to be between 6.9% and 10%.[2,3] Lack of gold standard of diagnostic tests increase the potential for unrecognized cases. Hence, the International Association for the Study of Pain (IASP) has set out a grading system to guide clinical assessment and diagnosis.[1] This approach involves multiple steps: identifying negative or positive sensory symptoms, assessing the neuroanatomical plausibility of pain, using clinical sensory examination to evaluate nervous system involvement, and running diagnostic test confirming nervous system lesions or disease (e.g., neuroimaging or neurophysiological tests). Such grading relies mainly on clinical experience, skills, and resources available for assessment. In clinical practice in many countries as well as in Taiwan, due to time constraints and the expertise required, the IASP grading system may not be applicable in the initial assessment. Therefore, screening tools with less resource intensity have been developed in primary care setting.

It is considered that the special painful and non-painful sensations in NP are resulting from particular mechanisms. Besides, certain pain descriptors are indicative, but not pathognomonic for NP, such as burning, electric shocks or shooting, pricking or pins and needles, pain evoked by light touch or cold, and associated sensations such as numbness and tingling.[4] Hence, screening questionnaires consist of several characteristic pain descriptors and, in some cases, the addition of a brief sensory examination. The most commonly used tools include the Leeds Assessment of Neuropathic Symptoms and Signs (LANSS),[5] the neuropathic pain questionnaire (NPQ),[6]

the Douleur Neuropathique en 4 questions (DN4),[7] the painDETECT,[8] and ID Pain.[9]

1. Leeds Assessment of Neuropathic Symptoms and Signs (LANSS)

The LANSS was the first tool to be developed. It contains 5 symptom items and 2 clinical examination items.[5] It has advantages such as wide availability, simplicity of use and good sensitivity and specificity (82%−91% and 80%−94% respectively).[10] It had been validated to identify patients with pain of dominantly neuropathic origin in patients with chronic pain. It can also be used to identify patients with complex regional pain syndrome (CRPS) and post-herpetic neuralgia, but not in patients with cancer, fibromyalgia and failed back surgery syndrome due to insufficient accuracy.[11]

2. Neuropathic Pain Questionnaire (NPQ)

The NPQ is comprised of 10 sensory items, and 2 affect items.[6] Its advantages include free availability, ease of self-administration, and short time required to complete. Nevertheless, the NPQ has one of the lowest accuracies (66% sensitivity, 74% specificity) among the screening tools.[11]

3. Douleur Neuropathique en 4 questions (DN4)

The DN4 consists of 7 symptom items and 3 items related to clinical examination.[7] It is easy to score and has good reliability. The 7 sensory descriptors can be used as a self-report questionnaire with similar accuracy. The DN4 was developed in French and has been extensively studied and translated into other languages.[10] Some studies have demonstrated superiority of the DN4 to other screening tools, with good accuracy (sensitivity: 76−100%; specificity: 45−92%), and inclusion of physician objective examination might reduce the percentage of uncertain cases.[12]

4. painDETECT

The painDETECT is a self-report questionnaire with 7 weighted sensory descriptor items and 2 items related to the

spatial and temporal patterns of the pain.[8] It was initially developed to determine degree of NP in patients with low back pain, and contained radiation as a sensory question.[10] Hence, it is particularly useful for back pain patients with radicular symptoms. It has also been studied in various conditions such as fibromyalgia, rheumatoid arthritis and cancer.[11]

5. ID Pain

This self-report questionnaire consists of 5 sensory items and 1 item related to whether pain is located in the joints, and thus is useful to distinguish NP from other types of localized pain.[9] It was originally created in a general population of patients with chronic pain. Therefore, in the primary care setting, ID Pain may be a better tool to screen for the presence of NP in a broad patient population.

All of these questionnaires discriminate patients with NP from those with other types of chronic pain with up to 80% sensitivity and specificity.[10] On the other hand, there is no consensus on a universally appropriate screening tool for NP. Accuracy of diagnosis was variable depending on the clinical population assessed and the screening tool used. For example, the DN4 is most accurate for identifying patients with diabetic NP, whereas the LANSS is most appropriate for patients with CRPS and post-herpetic neuralgia.[11]

Because of powerful evidence for the reliability of the screening methods, validation of these standardized tools has been accomplished across countries and languages.[10,12] The translation and validation of the screening tools into local languages offers patients and physicians a valuable tool to assess NP. However, none of these questionnaires had been previously translated and validated in Taiwan. In this issue of the *Journal of the Chinese Medical Association*, Yang et al. reported the development and validation of a Taiwan version of the ID Pain (ID Pain-T).[13] ID Pain was initially translated from English into Mandarin Chinese using local terms and back translated by an expert panel, to make sure that the translated version reflects the same item content as the original version. In this large, prospective and multicenter study, 317 patients with chronic pain completed the questionnaire and underwent standardized clinical evaluation of pain. The reliability and consistency of the ID Pain-T ($\alpha = 0.6$) was acceptable. In addition, the ID Pain-T showed good accuracy in distinguishing between patients with and without NP, with AUC of 0.82. Wang et al. found a score of 2 to be the best cutoff, with sensitivity of 77% and specificity of 74%. The results are comparable with the findings in the original and other translated versions.[9,14,15] Therefore, the ID Pain-T showed good psychometric and discriminant features for assessing the NP in chronic pain patients.

In conclusion, the utilization of screening tools for NP is valuable to alert primary care physicians to undertake further diagnostic evaluation. As NP has distinctive mechanisms from nociceptive pain, the accurate diagnosis would facilitate appropriate and timely pain treatment. The newly validated ID Pain-T developed by Wang et al. can be recognized in Taiwan as a credible screening tool for detection of NP in population of chronic pain patients, and thus may be useful in further clinical research. Future research could investigate how the screening questionnaires could be refined to improve its sensitivity for specific type of NP conditions: diabetic neuropathy, fibromyalgia, chronic low back pain, CRPS and post-herpetic neuralgia, for instance.

Conflicts of interest

The authors declare that they have no conflicts of interest related to the subject matter or materials discussed in this article.

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