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Journal of the Chinese Medical Association xx (2017) 1−6

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Original Article

# Development and validation of a Taiwan version of the ID Pain questionnaire (ID Pain-T)

Chih-Chao Yang [a], Long-Sun Ro [b], Yu-Chuan Tsai [c], Kon-Ping Lin [d], Wei-Zen Sun [e], Wei-Tse Fang [f], Shuu-Jiun Wang [d,g,h,*]

[a] *Department of Neurology, National Taiwan University Hospital, Taipei, Taiwan, ROC*
[b] *Department of Neurology, Chang Gung Memorial Hospital-Linkou Medical Center, Taoyuan, Taiwan, ROC*
[c] *Department of Anesthesiology, National Cheng Kung University Hospital, Tainan, Taiwan, ROC*
[d] *Department of Neurology, Neurological Institute, Taipei Veterans General Hospital, Taipei, Taiwan, ROC*
[e] *Department of Anesthesiology, Department of Anesthesiology, National Taiwan University Hospital, Taipei, Taiwan, ROC*
[f] *Pfizer Taiwan, New Taipei City, Taiwan, ROC*
[g] *Faculty of Medicine, National Yang-Ming University School of Medicine, Taipei, Taiwan, ROC*
[h] *Brain Research Center, National Yang-Ming University, Taipei, Taiwan, ROC*

Received March 30, 2017; accepted June 24, 2017

## Abstract

*Background*: Neuropathic pain (NeP) is distinct from nociceptive pain and has different underlying mechanisms requiring specific treatment strategies. To aid diagnosis, self-administered screening questionnaires (such as ID Pain) have been developed to help physicians identify patients with NeP. The aim of this study was to develop and validate a translated ID Pain questionnaire for Taiwanese subjects (ID Pain-T).
*Methods*: ID Pain, a 6-item self-administered questionnaire, score ranged from −1 to 5, was translated from English into Mandarin Chinese using local terms and back-translated by an expert panel. A prospective, non-randomized, multi-center study was performed in four medical centers in Taiwan. Patients aged over 18 years with pain other than headache for more than 30 days in either neurology or pain clinic were prospectively recruited. They completed the ID Pain-T questionnaire themselves. The study investigators, blinded to the subjects' ID Pain-T scores, examined subjects using a standardized clinical and neurological diagnostic procedure. The ID Pain-T questionnaire scores were verified and validated.
*Results*: A total of 317 patients completed the study. Clinical diagnosis of NeP was given for 189 (60%) patients, mixed pain diagnosed in 7 (2%) patients, and nociceptive pain in 121 (38%) patients. The reliability and consistency of the ID Pain-T were acceptable, with a Cronbach's alpha value of 0.6. Statistical analysis of the ID Pain-T questionnaire calculated an optimal cut-off score of $\geq 2$ for determining NeP with 77% sensitivity and 74% specificity for predicting NeP. Ordinary least squares regression analysis showed significant predictive accuracy of the ID Pain-T questionnaire for NeP ($P < 0.0001$). These results are comparable to other studies that have translated the ID Pain questionnaire into other languages.
*Conclusion*: This study provides evidence that the ID Pain-T questionnaire is a valid and reliable self-administered screening tool to identify NeP in Taiwanese patients.


*Keywords:* Neuropathic pain; Questionnaire; Taiwan

Conflicts of interest: Dr. Shuu-Jiun Wang has served on the advisory boards of Pfizer (Taiwan), Daiichi-Sankyo and Eli Lilly and has received honoraria as a panel discussion moderator from local companies (Taiwan branches) of Pfizer, Eli Lilly, Bayer and Eisai. Other authors declare that they have no conflicts of interest related to the subject matter or materials discussed in this article.

* Corresponding author. Dr. Shuu-Jiun Wang, Department of Neurology, Neurological Institute, Taipei Veterans General Hospital, 201, Section 2, Shi-Pai Road, Taipei 112, Taiwan, ROC.
*E-mail address:* sjwang@vghtpe.gov.tw (S.-J. Wang).

https://doi.org/10.1016/j.jcma.2017.06.019


Please cite this article in press as: Yang C-C, et al., Development and validation of a Taiwan version of the ID Pain questionnaire (ID Pain-T), Journal of the Chinese Medical Association (2017), https://doi.org/10.1016/j.jcma.2017.06.019

## 1. Introduction

Neuropathic pain (NeP) affects millions of people worldwide, and may be caused by a range of different diseases, injuries, and interventions resulting in lesions in the somatosensory pathways of the peripheral or central nervous system, which becomes manifest as a spectrum of signs and symptoms. This is distinct from nociceptive pain, which has different underlying mechanisms and treatment strategies.[1] The diagnosis of NeP is made through physiological and neurological examinations, based on patient history (i.e. if there is an identifiable syndrome), analysis of neurologic etiology, and perturbations in sensory functioning. In many cases, the diagnosis is challenging, and this may lead to difficulties in selecting the best therapeutic strategy for patients with NeP.[2,3] If patients with NeP are not diagnosed accurately, they may suffer from insufficient pain relief.[4]

Dysfunction of the nervous system resulting in pain may be detected as abnormalities during electrodiagnostic or imaging studies, quantitative sensory testing, or pathological examination of tissues.[2,5−7] Yet, there is a poor correlation between these findings and patients' reported experiences, as severe NeP can occur even in the absence of identifiable neural pathology.[8]

The Assessment Committee of the Neuropathic Pain Special Interest Group (NeuPSIG) of the International Association for the Study of Pain (IASP) has provided guidance on the definition and diagnosis of NeP in primary care. This international group redefined NeP in 2011 as “pain arising as a direct consequence of a lesion or disease affecting the somatosensory system either at peripheral or central level,” replacing the previous definition of “dysfunction” with “disease.”[9] This change makes it crucial to distinguish NeP from neuroplastic changes caused by nociceptive stimulation. In addition, “somatosensory system” is included to replace the term “nervous system” to distinguish pain caused by lesions in other parts of the nervous system. Although this revised definition may assist clinical diagnosis of NeP, there remains no consensus on the best diagnostic approach.[10−13] It has been proposed that NeP can be classified according to its level of certainty (possible, probable, or definite) by using a history-derived working hypothesis, neurological examination for somatosensory defects, and a minimum of one positive confirmatory test.[9]

To help with the diagnosis, a screening questionnaire may alert a physician to identify a patient with NeP based upon described pain.[9] There are several questionnaires that have been developed and validated to assess patients with NeP, such as the Leeds Assessment of Neuropathic Symptoms and Signs (LANSS),[14,15] Neuropathic Pain Questionnaire (NPQ),[16,17] Douleur neuropathique en 4 questions (DN4),[18] painDETECT,[19] and ID Pain.[20]

Validation of these questionnaires needs to be in the language of the patients to whom it will be applied, so that it may offer guidance for further diagnostic evaluation and pain management in that specific population.[9] ID Pain has been translated into Mandarin Chinese,[21,22] Italian,[23] and Thai,[24] while DN4 has been validated in French,[25] Spanish,[26] and Thai,[27] and translated into at least 15 other languages.

Effective screening questionnaires should be brief and easy to use, and help to identify patients with NeP without too much aid from a clinician in the primary care setting. ID Pain is a simple, patient-self-administered 6-item questionnaire that discriminates between neuropathic and nociceptive pain, consisting of five sensory items, and one item asking whether the pain is limited to the joints.[20] Its strength lies in the fact that it was developed in a mixed pain population that was large and very diverse, with patient samples drawn from university-hospitals and community-based populations, as opposed to single-center subjects experiencing NeP or nociceptive pain.[20] It has been well validated and widely used in the primary care setting for NeP screening.

The aim of this study was to develop a Taiwanese version of ID Pain (ID Pain-T) to identify NeP and validate it in Taiwanese subjects in a primary clinical care setting.

## 2. Methods

### 2.1. Study design and methods

This prospective, non-randomized, multicenter study was approved by the institutional review boards (IRBs) in the four medical centers in Taiwan where the study was conducted. A qualified nurse experienced in pain care translated the original English 6-item Identification (ID) Pain questionnaire into Mandarin Chinese using local terms. The translated version was then back-translated into English by an independent bilingual researcher who compared it with the original version for clarity and comprehension. The Mandarin Chinese version of the questionnaire (ID Pain-T) was finalized and validated by an expert panel.

### 2.2. Patient inclusion and exclusion criteria

Patients with pain other than headache for more than 30 days were included in the study if they were male or female aged over 18 years, were able to complete the ID Pain-T questionnaire, had not participated in another pain study within the past 30 days, had no evidence of unstable medical or psychosocial conditions, and had no experience of lower back pain, sciatica caused by piriformis, unclear identification of nerve injury, or mixed-origin pain (e.g. cancer pain).

### 2.3. ID Pain-T questionnaire analysis

Eligible subjects were enrolled into the Neurology or Pain Outpatient Clinic of each center to participate in the study. Subjects provided written informed consent after a thorough explanation of the purpose and detailed procedure of the study. The subjects completed the ID Pain-T questionnaire themselves in a waiting room, and returned it to the study nurse in a sealed envelope. In the ID Pain-T questionnaire, “Yes” answers to Questions 1−5 were given a score of 1, while a “Yes” answer to Question 6 scored −1. “No” answers were given a

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