

ORIGINAL PAPER**Short Screening for the Presence of Neuropathic Pain Component – What the Clinical Nurses Need to Know****Christos Kleisiaris, RN, MSc, PhD (c)**

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Abstract

Introduction: The neuropathic pain in cancer patients is presented mainly due to degeneration of nerves and his detection it is an important factor in management of cancer pain.

Aim: The purpose of the present study was to screen the frequency of neuropathic pain in cancer patients and to correlate it's relation to pain intensity.

Methods: This convenience sampling study was conducted in the Pain Clinic of the Anesthesiology Department - University Hospital of Heraklion. We studied 50 cancer-outpatients in 3-month period (October - December 2012), using the pain-DETECT questionnaire for screening the presence of neuropathic pain. It is consisted two modules (a 10-point pain scale, 0-10), that assess the intensity of pain and 7 questions (Likert type) that address the quality of neuropathic pain taking into account the behavior and the radiation pattern of pain generating the final score that ranging (0–38). A score 19 and over indicates that neuropathic pain is present. The intensity of pain was recorded as a mean score of the 10-point pain scale. Chi square χ^2 (trend linear) and Kruskal Wallis tests were used to explore the relations among neuropathic pain, pain-related symptoms and pain intensity. P-values ≤ 0.05 was considered statistically significant using the SPSS version 20.0.

Results: The mean age of the 50 studied patients (68% male and 32% female) was 65.1 ± 10.7 years. The mean score of the intensity of pain and the neuropathic pain were 6.3 ± 2.3 (range 0-10) and 16.7 ± 7.8 (range 0-38), respectively. The presence of neuropathic pain was significantly increased the intensity of pain ($p=0.043$) and the presence of pain-related symptoms ($p=0.043$).

Conclusion: A screening for the presence of neuropathic pain is an important element in the management of cancer pain. Nurses should know the contribution of neuropathic pain in cancer pain in clinical practice.

Key words: Neuropathic pain, pain intensity, cancer pain, clinic pain.

Introduction

Cancer is the second leading cause of death in developed countries (following heart diseases), according to recent World Health Organization (WHO) projections (WHO, 2007). In cancer patients, pain is one of the most feared and burdensome symptoms (Van den Beuken-Van Everdingen et al., 2007). The International

Association for the Study of Pain defines pain as an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage (Weiss et al., 2001), and a neuropathic pain defined as “pain arising as a direct consequence of a lesion or disease affecting the somato-sensory system” (Mellar & Declan, 2004; Treede et al., 2008).

The prevalence of cancer pain varies depending on type of cancer, stage, location of metastasis, and co morbidity (Mellar & Declan, 2004). Recent studies have shown that the prevalence at the time of cancer diagnosis and early in the course of disease ranged approximately 50%, increasing to 75% at advanced stages (International Association for the Study of Pain, 2008-2009). Another recent systematic review showed figures ranged from 24% to 60% in patients on active anticancer treatment and 62%-86% in patients with advanced cancer (Van den Beuken-Van Everdingen et al., 2007). The frequency of neuropathic pain was ranged 28% to 38% in different types of cancer (Mellar & Declan, 2004; García de Paredes et al., 2011; Breivik et al., 2009).

Epidemiological and questionnaire studies have demonstrated that a neuropathic pain has been associated with lower health-related quality of life (daily life activities, enjoyment of life, work ability, and social interactions) and higher prevalence rates of depression (Tavoli et al., 2008; Kuzeyli Yildirim, Uyar & Fadillioğlu, 2005). Furthermore, a neuropathic pain is linked to the neuropathic character of cancer pain, independently of its severity and duration (Attal et al., 2011; Smith & Torrance, 2012). Therefore, neuropathic pain is more likely to increase the intensity of pain despite the fact that effective analgesic therapy and an array of treatment modalities, has not been a significant reduction in the intensity of pain in cancer patients (Rayment et al., 2013). In Greece, none nursing studies have published focusing on screening for the presence of neuropathic pain component and its relation to pain intensity. Accordingly, this study has to focus on the detection of neuropathic pain and its characteristics.

Methodology

Aim study

This study was aimed to identify the presence of neuropathic pain in cancer patients and its relation to intensity of pain. The secondary aims were, to confirm the linkage between neuropathic pain and pain-related symptoms and to describe the most frequently anatomical body areas that cancer pain is detected.

Study design

This convenience sampling study was conducted in the Pain Clinic of the University General Hospital of Heraklion in 3-month period

(October - December 2012) in cancer-outpatients who visited the surgery pain after scheduled appointment. A total of 50 included patients were invited to complete the Greek version of pain-DETECT questionnaire – a useful screening tool for the presence and/or absence of neuropathic pain. Demographic characteristics of patients were also completed in a structured questionnaire.

Study analysis

The presence of neuropathic pain was assessed using the pain-DETECT questionnaire that widely has been used for screening the presence of neuropathic pain component. Originally, pain-Detect was designed by the German Research network on Neuropathic Pain (Deutscher Forschungsverbund Neuropathischer Schmerz, DFNS) and was recently development by Freynhagen and colleagues (Freynhagen et al., 2006). It is consist of a 10-point pain scale (0=none to 10=max pain) that assess the intensity of pain and 7 questions (Likert type) that address the quality of neuropathic pain including multiplication factors generating a final score. The final score (ranging 0–38) was emerged taking into account the pain behavior pattern and the pain radiation. According to pain-Detect final score, score ranging 0 to 12 suggests that a neuropathic pain component is unlikely (<15%), score 13 to 18 implicates that a neuropathic pain component can be present and, a score 19 to 38 confirms the presence of neuropathic pain (>90%). The intensity of pain was considered as a pain that patients were reported (self-reports) completing the questionnaire (ranging 0 to 10).

Ethics

Ethical approval to conduct the study was provided by the scientific council of University Hospital of Heraklion, Crete. Completing the questionnaire, the participants had already been informed by the co-ordinator for the fundamental ethical principles and that their participation was voluntary.

Statistical analysis

The data were analyzed using the statistical package social sciences SPSS 20.0. The Student t and/or Kruskal Wallis method was used to calculate the distributions of the mean scores of pain intensity scale (range 0-10) and pain-Detect questionnaire (0-38). In addition, chi square χ^2 (trend linear) test was used to explore the association between neuropathic pain and pain-

related symptoms and Kruskal Wallis method was also applied to correlate the presence of neuropathic pain with the intensity of pain. P-values ≤ 0.05 was considered statistically significant.

Results

Demographic characteristics of the study participants were presented in Table 1. A total sample of 50 participants (68% male and 32% female) was involved aging 65.1 ± 10.7 years (range 41–85 years). Regarding to the mean scores of the currently pain intensity and the final pain-Detect questionnaire were (6.3 ± 2.3 and 16.7 ± 7.8 , respectively). The pain was detected more frequently in the following anatomical areas; Valley region, Head and Thorax (22%, 20% and 16%, respectively). A neuropathic pain was detected in 40% of the study participants (final pain-Detect score >18). However,

nociceptive and unclear pain was presented both in 30% of the cancer patients.

Pain behavior pattern

Percentage 36% of the study participants were presented with persistent pain with slight fluctuations in contrast to 8% with pain attacks without pain between them. However, persistent pain with pain attacks and pain attacks with pain between them was presented both, in 28% of our sample – (Figure 1).

Presence of pain-related symptoms

Pain-related symptoms were presented in 66% of study participants. Payment under, fear and insomnia (30.3%, 24.2% and 21.2%, respectively), were present more often in contrast to dizziness, confuse and fever (15.2%, 6.1% and 3%, respectively). These findings were observed despite the fact that cancer pain was radiated in 72% of the whole sample – (Figure 2).

Table 1. Demographic Characteristics of the study participants

Description	N	Prevalence (%)
Gender	50	
Male	34	68.0
Female	16	32.0
Age		
(range 41-85 years)	Mean 65.1 ± 10.7	
Pain Intensity*		
(range 0-10)	Mean 6.3 ± 2.3	
Pain-Detect**		
(range 0-38)	Mean 16.7 ± 7.8	
Distribution of responses regarding to the detection of pain (body areas)		
Valley region		22.0
Head		20.0
Thorax		16.0
Genitals		14.0
Upper extremities		10.0
Lower limbs		10.0
		6.0
Spine		
Pelvis		2.0
Presence of Neuropathic pain***		
0-12 nociceptive		30.0
13-18 unclear		30.0
18+ neuropathic		40.0

0=no pain, 10=very pain

**Score >18 suggests presence of neuropathic pain ($>90\%$).

***Screening results of pain-Detect Questionnaire.

Table 2. Relation of neuropathic pain to the patients with pain-related symptoms (responses involving 33 participants).

Presence of neuropathic pain	Pain-related symptoms		P-value
	Yes	No	
	N (%)		
<13 - a neuropathic pain component is unlikely (<15%)	7 (21.2)	8 (47.1)	0.043
13-18 - unclear – a neuropathic pain can be present)	10 (30.3)	5 (29.4)	
>18 - a neuropathic pain component is likely (>90%)	16 (48.5)	4 (23.5)	

Chi square χ^2 (trend linear)**Table 3.** Association between neuropathic pain and intensity of pain.

	Presence of neuropathic pain			P-value
	<13 - a neuropathic pain component is unlikely (<15%)	13-18 - unclear – a neuropathic pain can be present)	>18 - a neuropathic pain component is likely (>90%)	
	Mean \pm SD (N)			
Intensity of pain	6.0 \pm 2.4 (15)	5.4 \pm 1.9 (15)	7.3 \pm 2.1 (20)	0.043

Kruskal Wallis control

Figure 1: Description of pain.

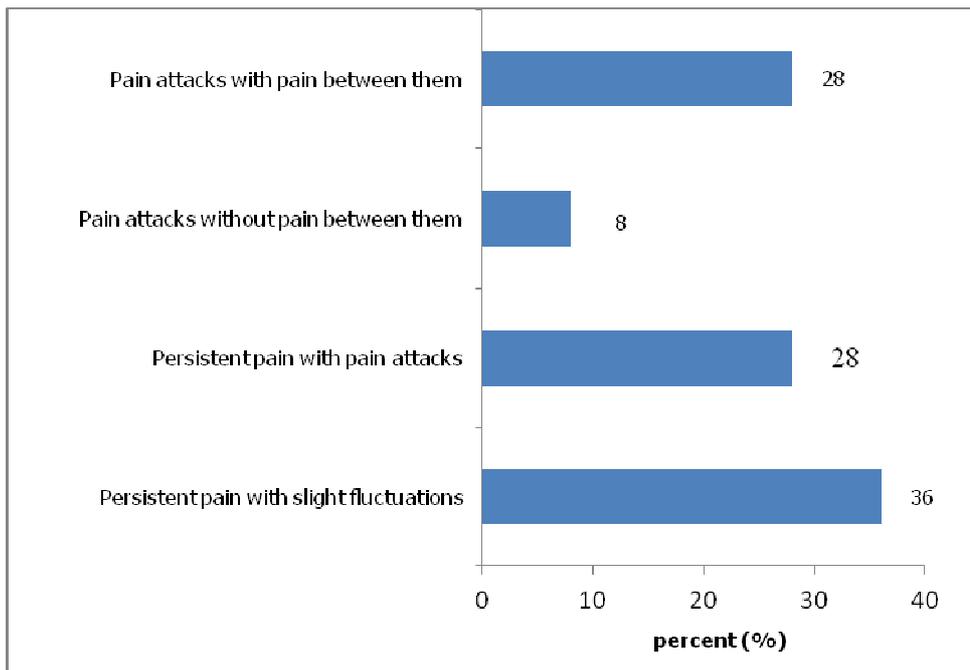
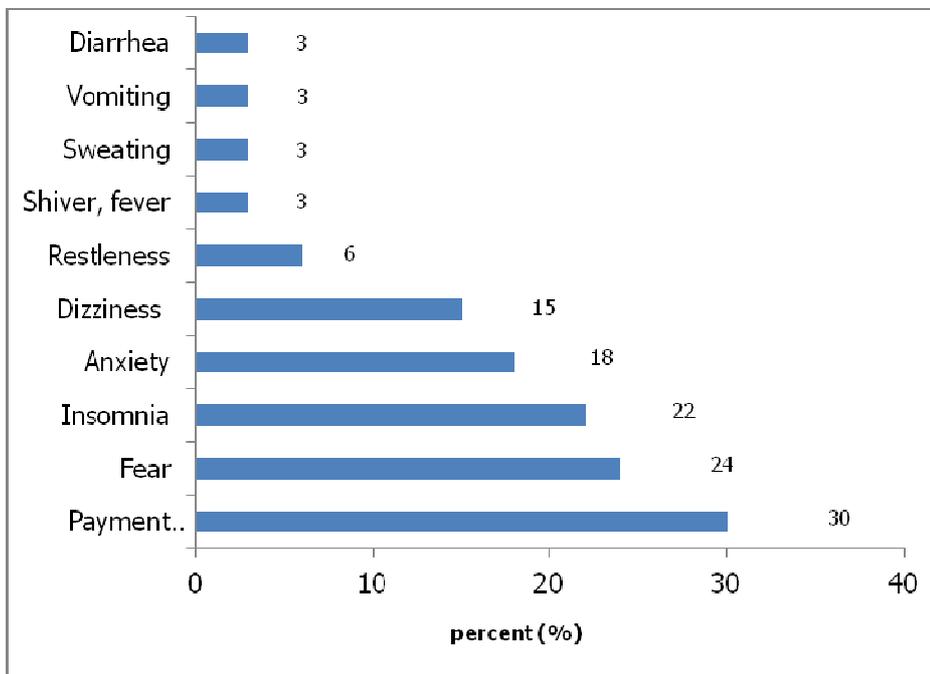


Figure 2: The most frequent pain-related symptoms (responses involving 33 participants).



Associations of neuropathic pain

Neuropathic pain was significantly associated with the increased presence of pain-related symptoms (trend linear; $r=-0.288$, $p=0.043$). Particularly, pain-related symptoms were significantly presented more often in patients with neuropathic pain than those with unclear and/or unlikely presence of neuropathic pain – (Table 2).

Neuropathic pain was also significantly related to pain intensity. Specifically, the intensity of pain was significantly presented more often in patients with neuropathic pain ($p=0.043$), than those with decreased presence of neuropathic pain – (Table 3).

Discussion

This study objected the detection of the neuropathic pain and its relations to the presence of pain-related symptoms and the intensity of pain in cancer outpatients, as they self-reported. This convenience sampling study has shown that the presence of a neuropathic pain significantly increases the intensity of pain and the presence of pain-related symptoms. We also have shown that a neuropathic pain was detected in 40% of the study participants.

The main finding of the present study was that the neuropathic pain is caused greater intensity of pain in cancer patients. Similar findings to our results were recently published reporting that the intensity of cancer pain was significantly greater in patients with neuropathic pain in comparison to patients with unlikely and/or unclear presence of neuropathic pain. In addition, a neuropathic pain was more common in cancer patients among different type of patients (Fallon, 2013; Steegers et al., 2008). Furthermore, evidence suggests that the presence of chronic pain, the type of treatment (chemotherapy and/or surgery) and the stage of cancer are important contributors to the increase of pain intensity (Steegers et al., 2008; Garzón-Rodríguez et al., 2013). Another explanation for the increase of pain intensity can be due either to tumor itself or it may be totally unrelated to the cancer (National Cancer Institute: at the National Institute of Health, 2012; Paice, 2003).

This study has shown another important finding regarding to pain related- symptoms that significantly associated with the presence of neuropathic pain. In particular, independently of drug receive, patients appear symptoms such as;

payment under, insomnia, fear and anxiety in higher levels. This finding is in agreement with the results of Bower et al., (2011), reporting that insomnia was greater in cancer patients under treatment whereas patients stress and/or anxiety was linked to hospital stay. In contrast, many diseases such as cancer and conditions (radiation treatments, chemotherapy, or the cancer itself) can cause nerve damage. Thus, neuropathic pain can be presented in cancer patients independently the presence of pain-related symptoms (Raphael et al., 2010). Studies focused on the Quality of life reported that neuropathic pain was associated with lower physical health, and greater requirements for pain medications social interactions (Baron et al., 2009; Tavoli et al., 2008).

Finally, we found that the prevalence of neuropathic pain did not differ to the figures of the other studies after considering Pain-DETECT scores. Specifically, recent results of Spanish cancer outpatients that focused on the nature of neuropathic pain (Garzón-Rodríguez et al., 2013) showed frequency 30.7%, while more higher than Spanish study (46.2%) was found in British cancer outpatients using the same screening tool (Birtle et al., 2013). Generally, the prevalence rates of neuropathic pain are ranged 33% to 56% among patients under treatment and chronic pain (Davis & Walsh, 2004; García de Paredes et al., 2011).

Study limitations

Despite the remarkable findings this study has certain limitations because of small sample and as a consequence the statistical processing was limited due to the fact that responses fell into a coincided category response. Therefore, this study could consider as pilot. Another potential limitation was that the questionnaire data were based on self-reports which indicated difficulty in describing through a questionnaire the exact state of their quality pain.

Conclusion

Bearing in mind that pain is reflected as a symptom that everyone judges as to how they conceive it; we concluded that neuropathic pain is strongly related to the pain intensity in our sample. Our data suggest that the key to improving and maintaining of neuropathic pain in nursing practice is the management of pain and thus, clinical nurses and health professionals

providing care to these patients have to focus on the detection and the treatment of cancer pain.

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