

The Characteristics and the Pharmacological Management of Cancer Pain and Its Effect on the Patients' Daily Activities and their Quality of Life: A Cross – Sectional study from Malaysia

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ABSTRACT

Context: Pain is a major health care problem for the patients with cancer and one of the most frequent and disturbing cancer related symptoms.

Aim: To study the characteristics of pain in cancer patients and its pharmacological management by using a subjective self-assessment questionnaire and the World Health Organization (WHO) analgesic ladder for pain management.

Settings and Designs: This study was conducted in the Oncology Wards of Penang Hospital, Penang, Malaysia. A questionnaire was developed to assess the pain characteristics and their effect on the patients' daily life activities and the information on the pharmacological management of the cancer pain. The cancer pain intensity was noted from the patients' medical database.

Material and Methods: By using the validated questionnaire, an observational, cross sectional study was conducted on the cancer patients who were admitted in the oncology wards of Penang Hospital, Malaysia, for a period of 1 month.

Statistical Analysis: Descriptive statistics like mean, frequency and percentages were used for this study.

Results and Conclusion: A total of 42 patients out of 143, who fulfilled the criteria, were interviewed. The results showed mild pain in 66.7% (28) of the patients, moderate pain in 7.1% (3) and severe pain in 26.2% (11). The normal daily life activities were affected by the pain in almost all the patients. Among the interviewed patients, sleep was affected in 88% (37) of the patients and the normal physical activity was affected in 92.9% (39) of the patients. Similarly, the pain decreased the appetite in 78.6% (33) of the patients, it affected the personal relationship in 35.7% (15), it affected the emotion in 71.5% (30) and it affected the visual activity in 33.6% (13) of the patients. Mild pain with distressing symptoms was not treated with any analgesic or adjuvant medications in 40.5% (17) of the patients. In contrast, all the patients with moderate and severe pain were treated with medications. Among them, 66.7% (2) of the patients with moderate pain and 90.9% (10) of the patients with severe pain were treated with analgesics as per the WHO analgesic ladder.

The WHO analgesic ladder guide for pain management was followed in a majority of the cases, when analgesics were prescribed. However, there was inadequate treatment of the cancer pain in many patients with mild pain and, consequently, their quality of life was largely affected.

Key words: Cancer pain, Pain characteristics, Pharmacological management, The WHO analgesic ladder

INTRODUCTION

Pain is one of the most common symptoms in the patients with cancer. It is a complex, multi – factorial phenomenon with a complex relationship between physical pain and emotional distress [1]. The pain is inherently subjective and the patient's self report is the gold standard for the pain characteristic assessment [2]. The information which is elicited from the patient should focus on the temporal features and the location and the severity [2]. The management of the cancer pain depends on a comprehensive assessment that characterises the symptoms in terms of the phenomenology and the pathogenesis, which assesses the relationship between the pain and the disease, and which clarifies the impact of the pain and the co – morbid conditions on the patient's quality of life [3].

A recent clinical experience has demonstrated that a proper pain assessment and providing the appropriate therapy according to the World Health Organization (WHO) method for the relief of cancer pain [4], can provide satisfactory analgesia to a majority (85%–95%) of the patients [5]. The WHO has developed a tool which is called as the 'WHO analgesic ladder', which is a useful and an effective tool in the treatment of mild, moderate and severe pain. It uses

a potency based, three – step analgesic ladder approach. When a pain control is not achieved in the first step, it is essential to move onto the analgesic ladder rather than change to another drug of the same potency [6]. A pharmacological management is the foundation of the cancer pain treatment [7] and the adequacy of the pain management can be related to the appropriateness of the analgesic prescribing.

The total number of cancer cases which were diagnosed in Malaysia in 2006 was 21,773, which was quite a high figure in the Malaysian community [8]. Despite the availability of guidelines for health care professionals, which were published by a number of national and international organisations, which include the U.S. Agency for Health Care Policy and Research (AHCPR) [9] and the World Health Organization [10], a large gap exists between the possible and the actual relief of cancer pain in the clinical practice. In Malaysia, government surveys have shown that the opioid consumption was lower than the global average, which showed a failure in meeting the need of an adequate pain control in terminally ill patients [11]. The pain management can be more effective if there is a better and a contextually validated tool for its management.

The verbal communication between the patient and the care giver is very important, and it is enhanced by asking simple and brief questions. Thus, this study was conducted to determine the cancer pain characteristics, the patients' perceptions of the cancer pain and its effect on the patients' daily life activities, by using a subjective, self – assessment questionnaire and to evaluate its pharmacological management and its adherence with the WHO guidelines.

METHODS

An observational, cross – sectional study was conducted for one month in the oncology wards of Penang Hospital. In this study, all the adult patients (age more than 18 years) with a history of cancer and chronic cancer related pain, who were admitted to the Penang Hospital for their chemotherapy treatment cycles, were included. The patients with an evidence of being investigated for progressive disease, active psychosis (which was confirmed by a psychiatrist) or primary drug abuse were excluded from the study.

The patients' medical records were reviewed to obtain information on the patients' demographics, the cancer type, the chemotherapy which was received, the pain intensity and the pharmacological management of the cancer pain. Prior to interviewing the patients, they were informed that their participation in this study was voluntary and written consents were obtained from them. Following this, the patients were interviewed by using a validated questionnaire to assess the temporal features, the location and the characteristics of the cancer pain and the effect of the pain on the daily life activities. The first draft questionnaire was developed, based on the McCaffrey and Beebee Questionnaire, which is a useful tool for pain assessment in home care settings [12]. After that, the questionnaire was reviewed by a group of experts which consisted of one oncology consultant, two oncology pharmacists and two practising clinical pharmacists, to ensure its suitability in the Malaysian context.

The study protocol was reviewed and approved by the Medical Research and Ethics Committee (MREC), National Institute of Health, Ministry of Health Malaysia. The data analysis was performed by using the Statistical Package for Social Sciences (SPSS), version 17 for Windows. The data were analyzed descriptively by using frequency distribution, percentages, mean and range.

RESULTS

The Patient Demographics

A total of 42 patients out of the 143 patients who were admitted to the oncology wards during the study period fulfilled the study criteria. The qualified patients were interviewed and their medical records were reviewed. In this study, both the genders were equally represented. The average age of the patients was 54.5 years. The other demographic data and the cancer types have been shown in [Table/Fig-1].

The Pain Intensity and the Physical Characteristics

During the interview, the pain intensity was recorded from the documented patient medical records, together with the patients' self – reports on the pain intensity. Among the 42 patients, 66.7% (28) had mild pain, 7.1% (3) had moderate pain and 26.2% (11) had severe pain. In this study, the patients were asked about their pain experiences in their own words, to assess their pain characteristics. Their subjective pain experience assessment, as has been summarised in [Table/Fig-2], showed that 40.5% (17) of the patients had a pulling type pain, followed by pricking pain in

Patient Age	Mean age (n=42)	54.5 (years)
	Range	47.8 to 62.8 years
Sex	Female	21
	Male	21
Race	Chinese	27
	Malay	10
	Indian	5
Cancer Type	No of cases	
	Cancer of Rectum	11
	Cancer of Breast	10
	Cancer of Stomach	4
	Natural Proliferative Cell cancer	4
	Pancreatic Neuroendocrine Tumour	3
	Cancer of Ovary	2
	Cancer of Prostate	1
	Cancer of Colon	1
	Neuroendocrine Cancer	1
	R LL Chondrosarcoma	1
	Cancer of Lungs squamous cell	1
	Cancer of Lungs	1
	Capillary haemangioma	1
Nerve Sheath Tumour of Rt. Elbow	1	

[Table/Fig-1]: Patient Characteristics

	No of Cases (n=42)	Comments
1. pain intensity		
Mild Pain	28 (66.7%)	
Moderate Pain	3 (7.1%)	
Severe Pain	11 (26.2%)	
2. Pain Type		
Mostly observed in		
Pulling	17 (40.5 %)	Cancer of rectum (7, 16.6 %)
Pricking	11 (26.1 %)	Breast cancer (5, 11.9 %)
Burning	6 (14.2 %)	Stomach cancer (2, 4.7 %)
Throbbing	6 (14.2 %)	Breast cancer (3, 7.1 %) and cancer of rectum (3, 7.1 %)
No-specific pain type	2 (4.7 %)	
3. Time of Pain Onset		
Morning	10 (23.8 %)	
Anytime	3 (7.1 %)	
Night (nocturnal pain)	2 (4.7 %)	
Afternoon	1 (2.3 %)	
4. Duration of Pain		
Can't specify the exact duration	17 (40.5 %)	
1 hour	16 (38 %)	
½ hour	4 (9.5 %)	
1½ hour	4 (9.5 %)	
2 hour	1 (2.3 %)	

[Table/Fig-2: Contd.]

	No of Cases (n=42)	Comments
5. Location of Pain		
Abdominal region	12 (28.5 %)	
Ano-rectal region	8 (19.5 %)	
Back Portion (lower and upper back)	7 (16.7 %)	
Chest	7 (16.7 %)	
Bone	3 (7.14 %)	
Hip (right and left)	2 (4.7 %)	
Couldn't identify any region	2 (4.7 %)	
Rt. Elbow	1 (2.3 %)	
6. Pain Reliever		
Medication	38 (90.5 %)	
Medication + Rest	4 (9.5 %)	
7. Pain Aggravator		
Movement	24 (57.1 %)	
Vulnerable to anything	18 (42.9 %)	
8. Symptoms Together with Pain		
Sweating	14 (33.3 %)	
Shortness of Breath (SOB)	7 (16.7 %)	
Abdominal Discomfort	4 (9.5 %)	
Nausea + Vomiting	3 (7.14 %)	
Chills and Rigors	2 (4.7 %)	
Cough	1 (2.3 %)	
Dizziness	1 (2.3 %)	
Fever	1 (2.3 %)	
Headache	1 (2.3 %)	
Giddiness	1 (2.3 %)	
Tenderness	1 (2.3 %)	

[Table/Fig-2]: Intensity and Physical Characteristics of Pain and Associated Factors

26.1% (11), a burning pain in 14.2% (6), and a throbbing pain in 14.2% (6) of the patients. As a response to the time of the pain onset and duration, pain in the morning was seen in 23.8% (10) of the patients, followed by pain at anytime, which affected 7.1% (3) of the patients. Among the interviewed patients, 40.5% (17) couldn't specify the exact pain duration, while 38% (16) said that the pain had lasted for about 1 hour. The most common locations of the pain, which were reported by the patients were the abdominal region (28.5%; 12), followed by the ano – rectal region (19.5%; 8), the back region (16.7%; 7) and the chest (16.7%; 7).

When the patients were asked, based on their experiences with the cancer pain in general, whether they needed medications only or medications plus rest to relieve the pain, 90.5% (38) of them responded that they needed to have medications to relieve the pain, while 9.5% (4) of the patients responded that they needed to have medications plus rest to relieve the pain. Movement was the pain aggravator in 57.1% (24) of the patients, while 42.9% (18) of the patients were vulnerable to anything. Sweating was the most common symptom which accompanied the pain, which was seen in 33.33% (14) of the patients, followed by shortness of breath (SOB) in 16.7% (7) and abdominal discomfort in 9.5% (4) of the patients. The patients also reported nausea and vomiting, chills and rigour, cough, dizziness, fever, headache, giddiness and tenderness.

The Pain's Effect on the Normal Daily Activities

As has been entailed in [Table/Fig-3], the normal daily life activities were affected by the pain in almost all the patients. The pain had affected the sleep in 88% (37) of the patients. The pain had reduced the appetite in a majority (78.6%; 33) of the patients and with a complete loss of appetite in 11.9% (5) of them. The physical activity was severely affected in 50% (21) of the patients and it was slightly affected in 42.9% (18) of the patients. A generalised distress which was caused by the pain was seen in 45.2% (19) of the patients. A majority of the patients said that their visual concentrations were not affected and that they could read just like they had done before. However, the pain had severely decreased the vision in 4.7% (2) of the patients. In this study, 35.7% (15) of the patients mentioned that their relationships with other people were affected by the pain. Most of these patients have mild pain [13].

The Pharmacological Management of Cancer Pain

As has been entailed in the [Table/Fig-4], out of 42 patients, only 59.5% (25) of the patients were treated with analgesic and adjuvant medications for pain relief, while the rest of the patients

Daily activities	No of Cases(N=42)	Comments
Sleep		
Disturbed	37 (88%)	Mild pain = 23
		Moderate pain = 3
		Severe pain = 11
Appetite		
Decreased	33 (78.6 %)	Mild pain = 20
		Moderate pain = 3
		Severe pain = 10
Loss of Appetite	5 (11.9 %)	Mild pain = 1
		Moderate pain = 0
		Severe pain = 4
Normal physical activity		
Slightly Affected	18 (42.9 %)	Mild pain = 13
		Moderate pain = 1
		Severe pain = 4
Severely Affected	21 (50 %)	Mild pain = 12
		Moderate pain = 7
		Severe pain = 2
Emotions (mood and feeling)		
Generalized Distress	19 (45.2 %)	Mild pain = 13
		Moderate pain = 4
		Severe pain = 2
Visual concentration		
Severely Decreased	2 (4.7 %)	Mild pain = 1
		Moderate pain = 0
		Severe pain = 1
Slightly decreased	13 (30.9 %)	Mild pain = 7
		Moderate pain = 5
		Severe pain = 1
Relation with otherpeople		
Affected	15 (35.7 %)	Mild pain = 13
		Moderate pain = 1
		Severe pain = 1

[Table/Fig-3]: Effect of Pain on Normal Daily Life Activities

were not treated with any pain relieving medications. Out of total 28 patients with mild pain, only 39.2% (11) were treated with analgesics, whereas all the patients with moderate and severe pain were treated with analgesics. Moreover, the group of patients with untreated mild pain (40.5%; 17) also complained of sleep disturbances, affected appetite, affected emotions (i.e. mood and feeling), affected relationships and affected visual concentration due to the pain.

Analgesic medication	No of Cases	Comment
Given	25 (59.5 %)	Mild pain = 11 (26.2 %)
		Moderate pain = 3 (7.1 %)
		Severe pain = 11 (26.2 %)
Not given	17 (40.5 %)	Mild pain = 17 (40.5 %)
		Moderate pain = 0
		Severe pain = 0
Type of analgesic/ co – analgesic/adjuvant medications used for the management of pain among the treated 25 cancer pain patients.	No of Cases	Comment
Paracetamol (Oral)	9	used alone for 3 cases in combination for 6 cases
Tramadol (oral)	4	used alone for 1 case in combination for 3 cases
Dihydrocodeine (Oral)	5	used alone for 3case in combination for 2 cases
Oxycodone (Oral)	3	used alone for 1case in combination for 2 cases
Pethidine (Oral)	1	in combination for 1case
Fentanyl (transdermal)	2	in combination for 2 cases
Morphine (Oral)	11	used alone for 5 case in combination for 6 cases
Amitriptyline (Oral)	2	in combination for 2 cases
Gabapentin (oral)	5	in combination for 5 cases
Lorazepam (Oral)	3	in combination for 3 cases
Buscopan (IV)	2	in combination for 2 cases

[Table/Fig-4]: Pharmacological Management of Cancer Pain

Mild Pain (Total no of treated patients=11)	
WHO analgesic ladder followed	10 (90.9 %)
WHO analgesic ladder not followed	1 (9.1 %)
Moderate Pain (Total no of treated patients=3)	
WHO analgesic ladder followed	2 (66.7 %)
WHO analgesic ladder not followed	1 (33.3 %)
Severe Pain (Total no of patient with severe pain = 11)	
WHO analgesic ladder followed	10 (90.9 %)
WHO analgesic ladder not followed	1 (9.1 %)

[Table/Fig-5]: Adherence with WHO Analgesic Ladder When Prescribing Analgesic Medications

As can be seen in [Table/Fig-5], out of the 11 patients with mild pain who were treated, 90.9% (10) were given analgesics, based on the WHO's analgesic ladder. On the other hand, all the patients with moderate and severe pain were treated with analgesics. Out of the patients with moderate and severe pain, 66.7% (2) and 90.9% (10) respectively, were treated with analgesics, based on the WHO's analgesic ladder.

As can be seen in [Table/Fig-5], various types of analgesics were used for the pain treatment. Most of the analgesics were used in combination, except in the cases where paracetamol was used as a single agent for mild pain and morphine was used as a single agent for severe pain. Paracetamol was used for the management of mild pain and also in various combinations for the treatment of moderate and severe pain. Morphine and other opioids were used for the treatment of mild, moderate and severe pain. They were used either alone or in combinations. Co – analgesics were used mainly for the treatment of severe pain (i.e. out of 7 cases which were treated with co – analgesics, 6 of them were severe pain cases). The non – analgesic medication, lorazepam, was used for 7.14 % (3) of the patients, while buscopan (IV) was used for 4.7 % (2) of the patients and these agents were used in combination with other analgesics for the management of moderate and severe pain.

DISCUSSION

The present study showed that the cancer pain characteristics and their effects on the daily life activities can be assessed, based on a standardised, subjective, self expression questionnaire. Mark P Jensen of the Department of Rehabilitation Medicine, Multi-disciplinary Pain Center, brought out a bigger picture of the cancer pain management and he argued that a repeated assessment and documentation of the pain, which began at the diagnosis and extended through the course of the disease, should be included in the medical record of every cancer patient as a necessary first step towards a comprehensive pain treatment [13]. This study also showed that the cancer pain severity depended on the pain intensity, and that there were different characteristics of expression in the patients with different cancer types. Furthermore, it has different locations, durations and onset in different patients with different cancer types. The pain significantly affected most of the daily life activities of a majority of the cancer patients like sleep, appetite, normal physical activity, relationships with other people, emotion and the visual concentration. A similar fact was shared in the study of Yildirim et al., (2005), which said that a continuous and an uncontrolled pain had a detrimental, deteriorating effect on virtually every aspect of a patient's life and that it could produce anxiety and emotional distress; undermine the well – being and interfere with the functional capacity of the patients [14].

The findings of this study showed a close relationship between pain and the normal daily life activities, which was a very clear evidence of an inadequate treatment of the pain. One of the important findings of this study was the affected normal daily activities of the cancer patients due to pain. In this study, the pain was found to affect the normal physical movement in a vast majority of the patients (92.9%). The pain had affected the sleep in a majority of them (88%). In another study, Savard et al., (2001) reported that insomnia was the most common sleep disturbance in this population and that it was most often secondary to the physical and/or psychological factors which were related to cancer [15]. Similarly, it was noted that the pain

had caused a decreased appetite and emotional disturbances in more than 70% of the patients. A study which was done by Glover et al., (1995) on the mood states of oncology patients, showed similar findings; as compared to the pain – free cancer patients, the cancer patients with pain had significantly higher levels of anxiety, depression, and anger [16]. In addition, more than one – third of the patients complained that the pain had affected their relationships with other people and that the pain had also affected their visual activities.

The quality of life is currently considered as a primary end point of the treatment and the clinical trials planning [17]. Based on such considerations; one could argue that the pain relief could significantly improve the overall quality of life or provide a satisfactory response to the affected daily activities. In this study, it was observed that most of the cancer patients with mild pain had been inadequately treated. Approximately 40.5% of the patients with mild pain had not received any analgesic medications, as was recommended by the WHO analgesic guidelines. This finding concurred with the findings of Maio et al., (2004) which reported that more than 80% of the patients with mild pain, 42% of patients with moderate pain, 24% of patients with severe pain and 7% of the patients who suffered from some degree of pain had received inadequate analgesic medications [18]. However, the study of Maio et al., had consisted of 752 patients with non – small cell lung cancer, unlike our study, which consisted of patients of various cancer types. Several issues can cause an under treatment or inadequate treatment of the pain. On the patient's side, a reluctance in reporting the pain (e.g. because of the concern of distracting the physician from the treatment of underlying diseases or of a fear that pain means worsening diseases) could be a reason worth considering [19] while on the physician's part, a failure in assessing the pain accurately could have caused an inadequate pain management [20].

Limitations of the Study and Recommendations for Future Research

This study had some limitations. This study was a pilot study so the small sample size might limit the generalisation of the findings. Furthermore, as one of the main objectives of the study was to assess the characteristics and the pharmacological management of the cancer pain, we did not compare the daily life activities between the cancer pain patients and the cancer free pain patients, as cancer free patients were excluded from the study. Hence, this could be a limitation of this study. Therefore, we suggest that future studies must be done, to compare the daily life activities between the cancer pain patients and the cancer free patients. In addition, as we have evaluated in general, the effect of the cancer pain on the sleep disturbance, the study findings warrant a study to evaluate the sleep disturbance in a more comprehensive manner (i.e. the type of sleep disturbance e.g. insomnia or nightmares and the degree of disturbance e.g. severely or moderately or slightly disturbed and its management).

Implications to Practice

- The use of a subjective, self – expression questionnaire could be effective in the clinical practice for the management of the cancer pain, to improve the treatment of the cancer pain.
- Pain control should be directly addressed as one of the primary goals of the treatment in the clinical practice, for the patients in general and for the cancer pain patients in particular.
- To improve the appropriate use of analgesic medications and to provide adequate analgesia, the physicians need to be

trained in the optimum management of cancer pain and they should be encouraged to use up – to – date guidelines for the pain management.

- Mild pain in the cancer patients should be treated adequately, as it may adversely affect the patients' daily activities and quality of life. The patients with severe pain should receive individualised and specific pain management to provide a satisfactory pain control and a better quality of life.

CONCLUSION

In this study, the WHO analgesic ladder was followed when medications were prescribed for cancer pain in a majority of the patients. However, there was inadequate treatment of the cancer pain in many patients with mild pain and, consequently, their quality of life was largely affected.

DISCLOSURE

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