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Adequacy of pain management in cancer patients in Benghazi Medical Center

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Abstract

Cancer-related pain (CRP) is a major problem that directly affects the patient life with a potential negative impact on its quality and their caregivers. The evaluation of pain severity and the adequacy of prescribed analgesics are the main step during the treatment of CRP. The main aim of our study was conducted to evaluate the adequacy of cancer-related pain medication in department of oncology of Benghazi Medical Center (BMC) using pain management index (PMI). This study was conducted at 2018.The data concerning the severity of pain were collected by using Brief Pain Inventory (BPI). The results showed that the most common patients were female) 78.6%) and 28.4% were males, whereas women used medication more adequately than men. Based on PMI scale, (96%) received -adequate pain management and (3.87%) were undertreated patients. 54% of the patients didn't need any medications for pain and 35.9% were managed with non-opioid analgesic and 8.84% were on weak opioids. This study suggests that the PMI should be used routinely to evaluate pain severity, and analgesics should be prescribed equitably without discrimination with regard to gender and socioeconomic status of patients.
Keywords: Cancer pain, Pain management, PMI, BPI.

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1. Introduction

Cancer is a major public health problem and the primary cause of death around the world. According to WHO established reports in 2015, cancer was the first or second chief cause of death less than 70 years age in 91 of 172 countries[1,2]. Lung cancer, breast cancer in women, bowel and prostate cancer are the four most common types of cancer among people around the world[2]. Depending on age, the international prevalence data of cancer in the eastern region of Libya was 135.4 and 107.1 per 100,000 for males and females, respectively. It's important to know that the most common malignancy in men was the lung cancer, while the breast cancer was the major among women in Libya [3].

Pain is one of the main concerns of patients in the advanced stage of cancer. Whereas more than 50% of the cancer patients in addition to 64% of the patients with the metastasis had cancer related pain [4]. Pain can badly influence the quality of health and general life making it difficult to perform the ordinary daily activities such as walking and sleeping [5]. 54 % of the patients that received active anti-cancer therapy feeling sever level of pain [6], and they require pain relief and health care at all stages of this disease. More than two-thirds of the cases with terminal stages sufferingpain, that is why it can be counted as an important health care problem for patients with cancer [5]. Therefore the pain control and other cancer therapy.

Once the cancer was diagnosed, the patients tend to be under great distress so that the relieve pain during cancer therapy becomes an important goal, and effective pain control

can prevent unnecessary suffering, and may potentially spare families the feeling of helplessness and despair. Other goals of controlling pain in any patient with cancer should be to improve his comfort and function while avoiding needless negative effects of cancer patients' medications because many patients experience depression during cancer treatment [7].

There are a numerous roles or guidelines for the management of cancer pain [8,9]. WHO analgesic ladder (WHO-AL) is the most common guideline for the last 20 years.

According to WHO-AL, 3-steps "analgesic ladder" were designed to facilitate and standardize pharmacologic cancer pain management, and the physicians can choose the suitable way to provide the best pain management to their patients [10]. Non-opioids analgesic such as paracetamol can be used for mild pain in first step, while step 2 comprises the use of a weak opioid for persistent pain or pain increasing to moderate level. Moreover step 3 advocates the use of a strong opioid such as morphine when moderate pain is persisting or increasing to a severe level [11].

Regarding to UK National audit Office reports (2000, 2004),there are some drawbacks during the use of WHO –AL guidelines, when the opioids and other drugs not functioning properly, 10-20% of the patients failed to receive effective relief particularly in case of neuropathic pain and 30% of patients in the last year of their lives obtain poor pain control[12]. For that reason, it was suggested that a fourth, "interventional", step was added to the 3-step, by incorporating the nerve blocks, intrathecal drug delivery systems and other surgical interventions [7].

The used method for relief cancer pain is important factor to achieve maximum pain control. Generally, the patients experience different severity of pain, even they having similar cancer types, they may respond to the same analgesic in different ways, and may exhibit varying sensitivities to the adverse effects from many of the drugs used. Because cancer pain is usually multifaceted, a multiple complicating analgesic regime must be used to alleviate all the aspects of pain sufficiently. Depending on many factors such as the type and extent of the cancer, the administration routes, adverse effects and drug dependency, the drugs may be limited for some patients use [7-13].

Since drug therapy is the mainstay of pain management, the suitability of the prescribed drug is evident in its painkiller performance. Based on the assumption that the goal of controlling cancer pain is to enable patients to withstand at an optimal level and ultimately in the terminal stage of death with relative pain, treatment of pain is inadequate when severe pain persists, regardless of the cause. Failure is due to inadequate use of pain relievers [14].

The adequacy of pain management based on the measurement of the pain management index (PMI). PMI is a composite measure reflecting the patient's pain severity and the appropriateness of the strength of the analgesic used in relation to the reported pain severity [11].

Data about extent of cancer pain management in developing countries such as Libya is very little and there is no studies were traced about the adequacy of cancer pain management in oncology department of Benghazi medical center (BMC). That is why we expect that this research will highlight the importance of this aspect and provoke a region-wide survey to investigate the true state of cancer pain management in eastern region of Libya.

The aim of this study is to investigate the capability of cancer pain management using (pain management index) PMI oncology department of BMC, and for reviewing most common types of cancer and analgesic used by the cancer patients.

2. Materials and methods

2.1 Place and duration:

This study took a period of 3 months, which was conducted, from January to March 2018 in the Oncology Department of BMC, Benghazi, Libya.

2.2Patients:

Total of 229 cancer patients who are registered at Oncology Department of BMC participated in the study. 48 patients were excluded, while the remained 181 were divided according to the gender into 143 females and 38males.The age of participants were between 20-90 years old. The contributors provided formal written consent; furthermore the ethical clearance was obtained from the institutional ethical review board.

All the cancer diagnosed Patients who agreed to participate as well as the department visitors to receive chemotherapy or follow-up in the unit of oncology in BMC were included in the study.

The exclusion criteria involved a history of other chronic comorbidities, such as diabetes or heart disease, and any known mental problem or being treated with psychotropic drugs.

The following information such as sociodemographic variation, medical and medication history, prescribed drugs (including analgesics), current diagnosis, and existing medication information were collected from the out patients department file documents of the patients after taking consent of the medical and administrative authorities in the unit.

2.3 Data collection

The collected data during the study comprised the types of cancer, duration of chemotherapy, the kind of drugs used pain control depending on its severity. On the other hands the data on the PMI score such as pain severity and interference with daily life, and adequacy of analgesic uses were gathered as described by Singh *et al* (2017).

2.4 Calculation of Analgesic Adequacy

The pain management index (PMI) is one of the most important methods for the estimation of the suitability of analgesic therapy. It is a well-validated and widely used process for assessing the adequacy of pain management developed by Cleeland, 1989 and Okuyama, 2004.

Brief Pain Inventory (BPI) is method used for quick assess the severity of pain and its effect on function performance. The pain severity was sorted as 0, 1, 2, and 3, to represent the average scores of BPI in the none (0), mild (1–3), moderate (4–6), and severe (7–10) respectively for computing the PMI values.

A patient's analgesic score on the PMI was calculated according to the type of analgesic which prescribed by the physician. The prescribed analgesic was scored as 0 for no drugs used, while 1 was taken for the non-opioid medication (i.e., non-steroidal anti-inflammatory drugs or acetaminophen), a weak opioid (e.g., codeine) was counted as 2 numeric, on the other hand 3 for the strong opioid (e.g., morphine, hydromorphone, oxycodone, fentanyl).

The PMI used for analgesic adequacy of analgesic was calculated by subtracting the scores of pain severity from the grade of analgesic drug class as described by Cleeland (1989) Patients with negative PMI scores were classified as receiving inadequate analgesic treatment for their cancer pain.

2.5 Statistical analysis:

Baseline distinctiveness (demographic, cancer specific parameter) was summarized by using the descriptive statistical parameters. Frequency, mean, percentages, and standard deviation were calculated wherever appropriate (analysis of variance and x^2 test), then analyzed to conclude whether the patients adequately or inadequately managed the pain and find it's correlation with their age, sex, duration, and cancer type.

3. Results

Results are illustrated in the tables (1-3), and figures (1-4).

The most common patients were female) 78.6%) as showed in the table below.

Table 1: Gender distribution of patients included in the study

Variable		No (%)
Sex	M	38(20.9)
	F	143(78.6)

The most frequent duration of chemotherapy was 3-6 months (34.1%)

Table 2: Patients distribution according to chemotherapy duration

Chemotherapy duration	No (%)
No chemotherapy	27(14.8)
Less than 3months	44(24.2)
3-6months	62(34.1)
6-12months	18(9.9)
More than 12months	30(16.5)

The breast cancer (55.86%) is most common one followed by colorectal type (11.73%).

Table 3: Patients distribution according to type of cancer

Type of Cancer	No.(%)
Breast Ca	100(55.24)
Colorectal Ca	21(11.6)
Lung	13(7.18)
Others	47(26)

The percentage of women were adequately used the medication (98.6%) was greater than men (86.8%).

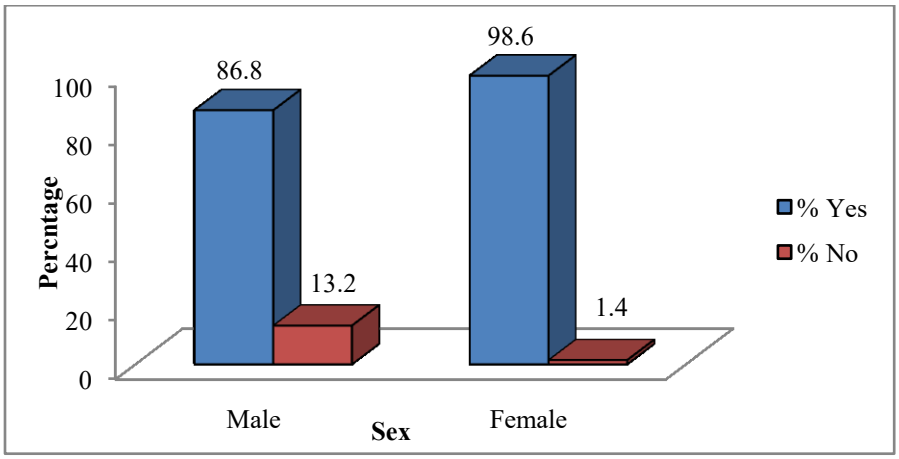

Figure 1: The adequacy of cancer pain treatment regarding sex

Based on pain management using the PMI scale, (96%) received adequate pain management and (3.87%) did not.

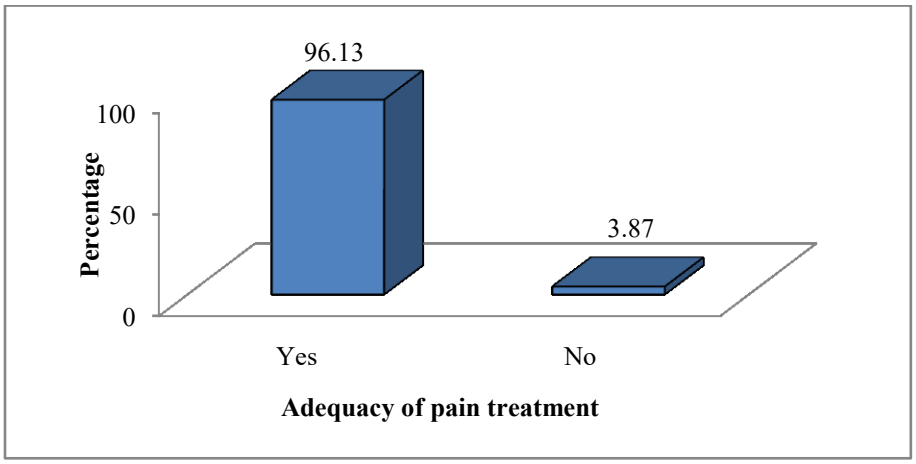

Figure 2: The distribution of patients regarding the adequacy of treatment

54% of the patients didn't want any medications for pain. 35.9% were managed with non-opioid analgesic and 8.84% were on weak opioids.

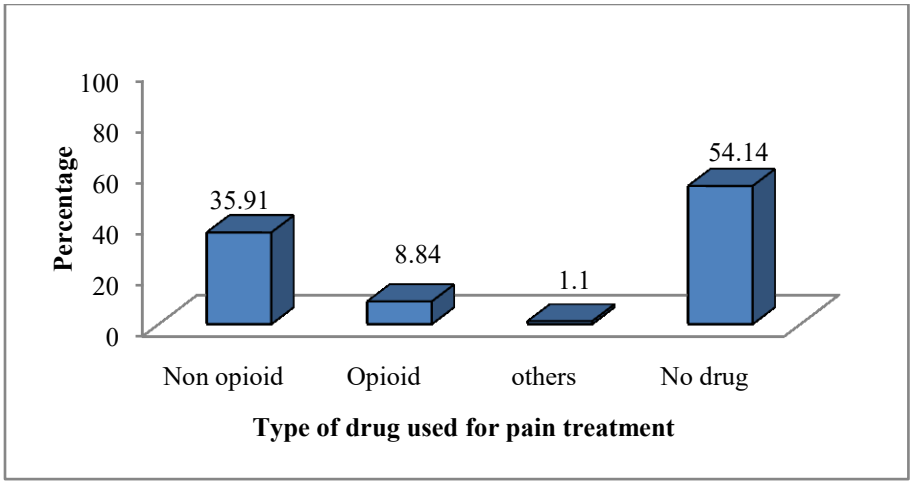

Figure 3: Type of drugs used for treatment of cancer pain

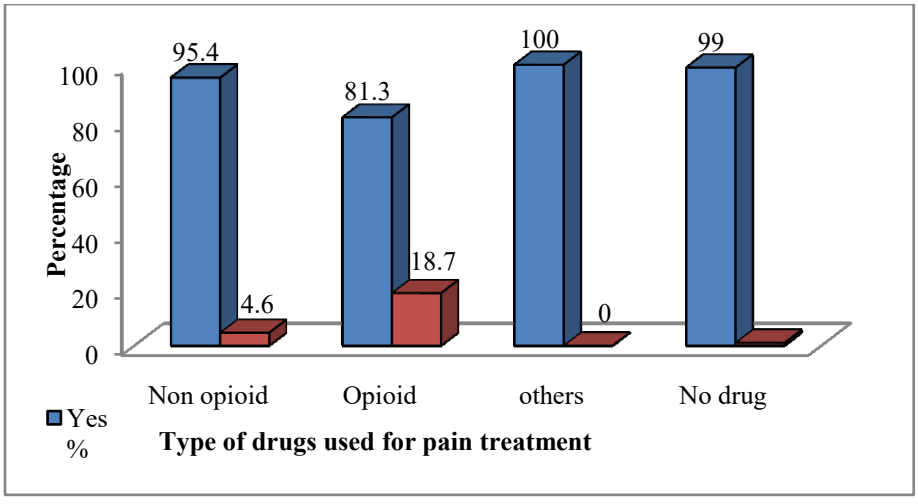

Figure 4: the adequacy of cancer pain treatment according to type of drug

4. Discussion

The pain accompanied with the cancer is one of the most important deleterious and distressing symptoms suffered by cancer patients beside to the other symptoms which disturb their quality and mood of life. To the best of our knowledge, very little research has examined the adequacy of cancer pain management in the developing countries [18]. Alleviating pain is a chief goal of prognosis of pain management, recently the study of cancer treatments was based on the assessment of the patient pain scores [5].

According to the WHO guidelines (WHO-AL) the cancer pain management is quitly adequate when the patients reported level of pain is similar to potency of the prescribed analgesic drug. These concepts can be measured and compared by PMI.To construct the index, we determined the levels of boththe analgesic-drug therapy and patient pain as mentions before in the materials and method. The majority of the cases were from the outpatient clinic, therefore thelevel of the bpain was rated from moderate to mild.[19].

The adequacy of treatment was examined through the direct interview with the outpatients, only the type of the analgesic drug prescribed was incorporated to compute PMI scores [15].

In our results, the failure of pain control (under treatment) by analgesics was more pronounced in males, (inadequacy of treatment was 13.2 %), while females showed better response (adequacy of treatment was 98.6 %). Poor devotion to analgesic regimen is one of the reasons for under-treatment of cancer related pain [20]. Fear for side effects and tolerance are the major factors that affect patient's medication taking behavior[21].

Result analysis displayed that the breast and colorectalcancer are the most common malignancies in BMC, lung cancer comes next. It was also found that a high proportion of participantsare treated with chemotherapy for a period ranging from 3-6 monthes (34.1%). The data showed that 96% of drugs used for control pain and 75% of analgesics were adequate.

European and United States studies indicated that patients who did not receive adequate treatment for the different types of pain ranged from 56% to 82.3%[6].

Greco et al, 2014 have reported a previous systematic review from 1994 to 2013, according to PMI score, the date indicated a progressive improvement in the quality of pain management and a significant reduction in the prevalence of under treatment, however the percentage is still elevated (31.8%). On the other hand another study was done regards to the pain managements using PMI technique showed that nearly one-third of patients do not receive adequate analgesia proportional to their pain intensity (PI)[22], this indicates a distinct improvement in pain control due to the cancer in recent years. Our results and figure (3) displayed that more than half of the Patients did not use any analgesic for treatment of cancer pain (54.14%) and more than 35% of them used non-opioid drugs, what is striking is that most of them used these medication adequately.

Paracetamol and NSAIDs are the main components of the first two steps of the treatment of cancer pain of the WHO analgesic ladder around the world[22], This study agrees with our finding which revealed that 95.4% of the patients were adequately used non-opioids for treat pain associated with cancer.

The adequacy of treatment was very high in those either using no drugs or using other medication like muscle relaxants & neurotropics and other simple medications (100% and 99% respectively), because their pain was very insignificant or minimum; so they needed no pain killers or when they used simple drugs, their pain was relieved.

Furthermore the collected data from BMC outpatients showed that (8.84%) of the cases considered as an opioid –users, 81.3% of them were adequately used mild type of this analgesic for alleviate pain, as they used only mild opioid (tramadol is the only available drug) and the availability of even this mild opioid was very limited.

However 4.6% and 18.7% are considered as undertreated patients and inadequately used non-opioid and opioids respectively. Neither the hospital nor the private sector has provided the cancer patients with strong opioid, may be due to lack of this type of the adjuvant medication. Lastly, lack of dedicated qualified pain clinics and pain specialists is probably one of the most important reasons for inadequacy of treatment or pain control.

5. Conclusion

Using the PMI to reflect adequacy of cancer related pain medication, only3.8% of patients suffering from CRP received inadequate analgesic treatment. Patient education and care are essential approaches to improve cancer pain relief.

The mandatory use of the BPI for every patient with pain is recommended to ensure the proper assessment of pain severity and adequate pain management to improve the standard of medical care.

Future prospective studies across other care settings are necessary for further examination of inadequate analgesic use in CRP management. Both prescriber and patient surveys are required to determine the barriers and enable the optimal control of CRP in the department of oncology of BMC.

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