

Barriers toward Using Opioids in Cancer Pain Management

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Abstract

Background: Pain is one of the most prevalent symptoms in cancer, which adversely affect the patients' quality of life. The efficacy of opioids for cancer pain has been proven, and the World Health Organization (WHO) three-step ladder has been recommended for cancer pain relief. However, under-treatment of cancer pain has still been reported.

Purpose: The purpose of this review is to examine the barriers toward using opioids analgesic in cancer pain management.

Method: A review was conducted to examine the body of knowledge related to barriers toward using opioids in cancer pain management. The databases of PubMed, CINAHL, and MEDLIN were searched for relevant publications from 2010 to 2015, using different key words: barriers, cancer pain management, opioids, a combination between these keywords were used and 140 articles were found, then by applying the inclusions criteria and skimming the titles and abstracts and removing the duplicated articles, a total of 10 articles were included in this review.

Findings: A total of 10 studies that formed the basis of this review were evaluated regarding barriers toward using opioids analgesic in cancer pain management. The major categories related to health care system were barriers related to the availability and accessibility of opioids, for healthcare professionals the most related barriers were includes fear of addiction, fear from side effects, under-estimation of Pain Intensity and knowledge regarding opioids, where the patients related barriers were classified to cognitive and sensory barriers.

Conclusion: Three major sources of barriers were identified regarding using opioids in cancer pain management: system, healthcare professionals, and patients' related barriers. Once the underlying factors were identified, all efforts should be taken to overcome them as a barriers to improving pain management in patient with cancer.

Key words: barriers, cancer pain management, opioids

I. Introduction

A worldwide review of cancer pain statistics, for about 40 years ago, concluded that about 53% of patients at all disease stages and 63% of patients with advanced cancer stage suffering from pain. Moderate to severe degree was reported in more than 50% of cancer patients (Cleeland, 1991; Van den, Rijke, Kessels, Schouten, Van Kleef & Patijn, 2007).

International Association for the Study of Pain (IASP) defined pain as an "unpleasant sensory and emotional experience associated with actual or potential tissue damage" (IASP, 1994). Regarding cancer cells the inflammatory process induced some factors including cytokines, interleukins, chemokines and prostanooids released, resulting in hypersensitivity of spinal cord sensory neurons, then pain is arose related to the disease itself or its treatment (Ballantyne, 2003), it can be categorized along a variety of dimensions, acute or chronic based on onset and duration(Falk, Bannister & Dickenson, 2014), moreover nociceptive (visceral and somatic) or neuropathic pain according to the pathogenesis (Nicholson, 2006).

Although cancer pain or associated symptoms often cannot be entirely eliminated, about 90% cancer patients could be free of pain if it was managed effectively(Weiss, Emanuel, Fairclough & Emanuel, 2001).Many practice guidelines exist for the treatment of cancer pain (Jacox et al 1994; Wilson et al 1997; Benedetti et al 2000; Panchal et al 2005). From these, probably the most widely used are the guidelines developed by the World Health Organization (WHO) 20 years ago, which include the 3-steps "Pain Ladder" designed to guide and standardize pharmacological cancer pain management including nonopioid, opioid, and adjuvant analgesic drugs (Figure 1) (Nersesyan & Slavin, 2007).

Opioid therapy is the cornerstone of management of moderate to severe chronic pain in cancer patients (Ballantyne, 2003; Davis, Walsh, Lagman & LeGrand, 2005). Despite the significant benefits of opioids in pain management (Nguyen et al., 2013),different barriers regarding opioids exist could be related to patients, health care providers and the system, results in undertreated pain in patients with cancer (Biro, 2013).

Therefore, this review is conducted to examine the barriers toward using opioid analgesic in cancer pain management. Also, it is guided by Roy Adaptation conceptual model, which considers pain as a focal stimulus

and develop interventions that promote positive adaptation for cancer patient's well-being (Roy, 1976; Roy & Andrews, 1991).

II. Methods

To examine the body of knowledge related to barriers toward using opioids in cancer pain management, a comprehensive literature review was conducted using the electronic databases of PubMed, CINAHL, and MEDLIN. Furthermore to assure that this review contained the most up-to-date information, the search was limited to include only evidence published from 2010 to 2015.

An extensive search has been done utilizing the following keywords: *barriers, cancer pain management, opioids*. The combinations were used between the key words to find out the most pertinent articles. Electronic listings from PubMed, CINAHL, and MEDLINE databases were contained 136, 3 and 1 research articles, respectively. All the studies were reviewed and revised to identify articles that meet the inclusion criteria established for this review. The article selection steps are shown in figure 2.

Inclusion Criteria

To identify the articles which will be included in this review, a set of pre-defined characteristics were used. Article inclusion criteria for the review were: (1) a research based study, (2) a patient population of adults with cancer, (3) investigated barriers toward using opioids in cancer pain management, (4) conducted between the years 2010-2015, (5) written in the English language.

According to this criteria, initial assessment for the titles and abstracts of all articles was done, then unrelated and duplicated papers were removed, full-text of remaining articles were reviewed comprehensively, a total of 10 quantitative studies were selected, focused on the barriers toward using opioids in cancer pain management met the pre-established criteria.

Methodological Characteristics

A total of 10 studies that formed the basis of this review were evaluated. All of the studies were quantitative, all of them were descriptive. These studies were published from 2010-2015, most of the studies included was published in 2014, with the latest one in 2015. The questionnaire was mainly used with different scales to measure the concepts related to barriers regarding opioids in the management of cancer pain.

Sample Characteristics

The length of the study, and the number of subjects (sample size) varied greatly between the 10 studies; the time needed to conduct the studies ranged from one month to 10 months. For the policy makers/regulators, health care providers, adult patients with cancer, the sample size ranged from (47), (82- 1204), (33-2087) with the age by year ranged from (35-46), (30- 61), (17-80), respectively. Furthermore, the majority of the subjects were female except the health care providers.

In patients, approximately 54.1% of them were suffering moderate to severe pain. Regarding the health care providers, the main clinical specialty was in surgery, oncology, anesthesiology, internal and family medicine track, commonly in community, private and academic hospitals. More than a half (57%) had clinical experience ten years and above. Additionally, about (35.2 %) of physician used the World Health Organization (WHO) three steps ladder, 30.8% didn't use it, and 34% of them didn't hear about it. The studies were conducted mainly in Thailand, Korea, Bangladesh, Turkey, United States and Japan.

Findings

By reviewing the tenth included studies regarding the barriers toward using opioid analgesic in cancer pain management, three major sources were identified: the healthcare system, the healthcare professionals, and the patients.

1. Health Care Providers Related Barriers

1.1. Fear of addiction:

The majority of the physicians reported concern about the prompt development of tolerance and addiction, which had significantly reverberate in their attitude towards opioid prescribing (Breuer, Fleishman, Cruciani, & Portenoy, 2011). Therefore, one of the most commonly perceived barrier by physicians in regards to opioids are physical dependence, tolerance, and addiction (Khan, Ahmad, Iqbal, & Kamal, 2014; Srisawang, Rashid, Hirose, & Sakamoto, 2013). More than one third of the physicians overestimated the likelihood of addiction (addiction rate >1%) (Khan, Ahmad, Iqbal, & Kamal, 2014) results in that a significant percent of the physicians preferred to decrease the dose of opioids than the required dosage to avoid drug tolerance and addiction (Atasoy et al., 2013).

1.2. Fear from side effects

Physicians would not prescribe opioids due to their belief of the adverse effects of opioid analgesics from dosage increment (Atasoy et al., 2013), specifically from respiratory depression considering it as a critical side effect (Khan, Ahmad, Iqbal, & Kamal, 2014).

1.3. Under-Estimation of Pain Intensity

Regarding poor pain assessment (Atasoy et al., 2013; Breuer, Fleishman, Cruciani, & Portenoy, 2011), more than half of the physicians reported that when the number of requests from the cancer patient regarding pain control medication increased, this usually indicate that the patient was psychologically addicted or developed tolerance to the drug as well as experiencing increased pain (Khan, Ahmad, Iqbal, & Kamal, 2014).

In addition, the practicing physicians consider that most of the hospitalized patients receive adequate pain treatment, and the patients usually exaggerated the pain usually for getting the attention of medical personnel, sometimes the patients move toward moderate to severe pain intensity even if it is in mild level to ensure adequate amount of pain killer (Kim, Park, H., Park, E., & Park, K., 2011).

1.4. Knowledge Regarding Opioids

For both physicians and nurses, knowledge deficit regarding opioids in pain control was prominent (Breuer, Fleishman, Cruciani, & Portenoy, 2011; Jho et al., 2014; Kim, Park, H., Park, E., & Park, K., 2011; Srisawang, Rashid, Hirose, & Sakamoto, 2013). The physicians prominently showed inadequate knowledge regarding opioid pharmacology such as choice of potent opioids (morphine or pethidine), schedules (around the clock or PRN) and routes (by oral or parenteral) (Khan, Ahmad, Iqbal, & Kamal, 2014; Srisawang, Rashid, Hirose, & Sakamoto, 2013).

Moreover, the health care providers with insufficient knowledge of pain control may delay the administration of opioids to patients rather than referred their patients to palliative or pain specialists (Atasoy et al., 2013; Jho et al., 2014). Additionally, the physicians who did not use the WHO three-step ladder were susceptible to have inadequate knowledge and negative attitudes toward using opioids in cancer pain management (Srisawang, Rashid, Hirose, & Sakamoto, 2013).

2. Patient Related Barriers

The most significant patient-related barriers to cancer pain management could be classified as cognitive and sensory barriers (Jacobsen et al., 2014).

2.1. Cognitive barriers

2.1.1 Fear of addiction

Patients may delay taking their medication, take less than the effective dose, or not take it at all because they fear of addiction and developed a tolerance to the analgesics (Akiyama et al., 2012; Colak, Oguz, Yazilitas, Imamoglu, & Altinbas, 2013; Jacobsen et al., 2014; Nguyen et al., 2013).

2.1.2 Knowledge regarding opioids

Patients commonly showed inadequate knowledge regarding opioids to control cancer pain (Akiyama et al., 2012; Jacobsen et al., 2014), including their beliefs that analgesics mask changes in one's body and it consider as a sign of imminent death (Colak, Oguz, Yazilitas, Imamoglu, & Altinbas, 2013; Nguyen et al., 2013).

Akiyama and his colleagues in 2012 mentioned that older patients who reported lower-level quality of palliative care they received were significantly more likely to have incorrect knowledge about opioids and sense of security levels were significantly lower in patients who agreed that "opioids can't relieve most pain caused by cancer".

2.2. Sensory barriers

Take into account the physiological experiences related to pain treatment including opioid side effects and concerns that analgesics may harm the immune system; which is affect the adherence of the patient to the prescribed opioids (Colak, Oguz, Yazilitas, Imamoglu, & Altinbas, 2013; Jacobsen et al., 2014; Nguyen et al., 2013).

3. System Related Barriers

Health care system barriers could be related to the policy makers in the organization, to the manufacturing process, or to the ability to use available opioids. Therefore system related barriers classified as:

3.1. Organization policy makers/ regulators

A study conducted by Srisawang and his colleagues in 2013 reported that majority of policy makers/regulators had inadequate knowledge and negative attitude in regard to use opioids in cancer pain management,

additionally to that opioids addiction considered as a serious problem between them. Negatively, these factors interferes with ability of the policy makers to address the needs of opioids in pain management in the organization.

3.2. Opioid availability

Opioid availability refer to "The country has stock of approved opioid at the manufacturer or retail level of the drug distribution system" (Khan, Ahmad, Iqbal, & Kamal, 2014). Barriers to opioids availability were mainly related to: (1) a lack of communication about the need for opioids between key groups including health care professionals, health policy makers and drug manufacturers, (2) Interruptions in opioid manufacture or distribution periodically, (3) opioids are available but not in the needed dosage forms, (4) opioid analgesic products are too expensive (Srisawang, Rashid, Hirotsawa, & Sakamoto, 2013).

3.3. Opioid accessibility

Opioid accessibility refers to the ability to obtain legally available opioids (Khan, Ahmad, Iqbal, & Kamal, 2014), the patients generally had very low access to opioids relative to need (Colak, Oguz, Yazilitas, Imamoglu, & Altinbas, 2013)

Moreover there were narcotics Laws and regulations that restrict the amounts of opioids which can be prescribed, in addition to restrict level of physician who can prescribe opioid (Khan, Ahmad, Iqbal, & Kamal, 2014). Furthermore, in some regions opioids are usually kept in hospital pharmacies, rather than wards, due to the strict regulation policy, which is time-consuming process and restrict the accessibility of opioids (Jho et al., 2014).

III. Conclusion

Despite the dramatically increasing effort to control the pain in patient with cancer, a significant percent of patients still suffering from pain. One of the major contributing factors is related to barriers to using opioids in pain management, which were defined as the system related barriers, healthcare professionals' related barriers, and the patients' related barriers.

Majority of surveys have shown that negative beliefs and incorrect knowledge about cancer pain and opioids could interfere with optimal pain management, especially an unrealistic fear of addiction. A total of the tenth studies summarized in Table 1.

IV. Implication

Health care system, health care providers and patients, could utilize the findings of this review in increasing the efforts to overcome these barriers. Interestingly, results in high effectiveness in pain management in patients with cancer.

V. Recommendation

Further studies should be performed to support such results particularly with larger sample size, considering the cancer pain. In addition to further education and practical training in adequate cancer pain management.

Acknowledgment

The authors thankfully acknowledge the assistance of Mrs. Leena AL-Masri to get the full articles copies for some studies.

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Figure 1: The World Health Organization cancer pain treatment step ladder

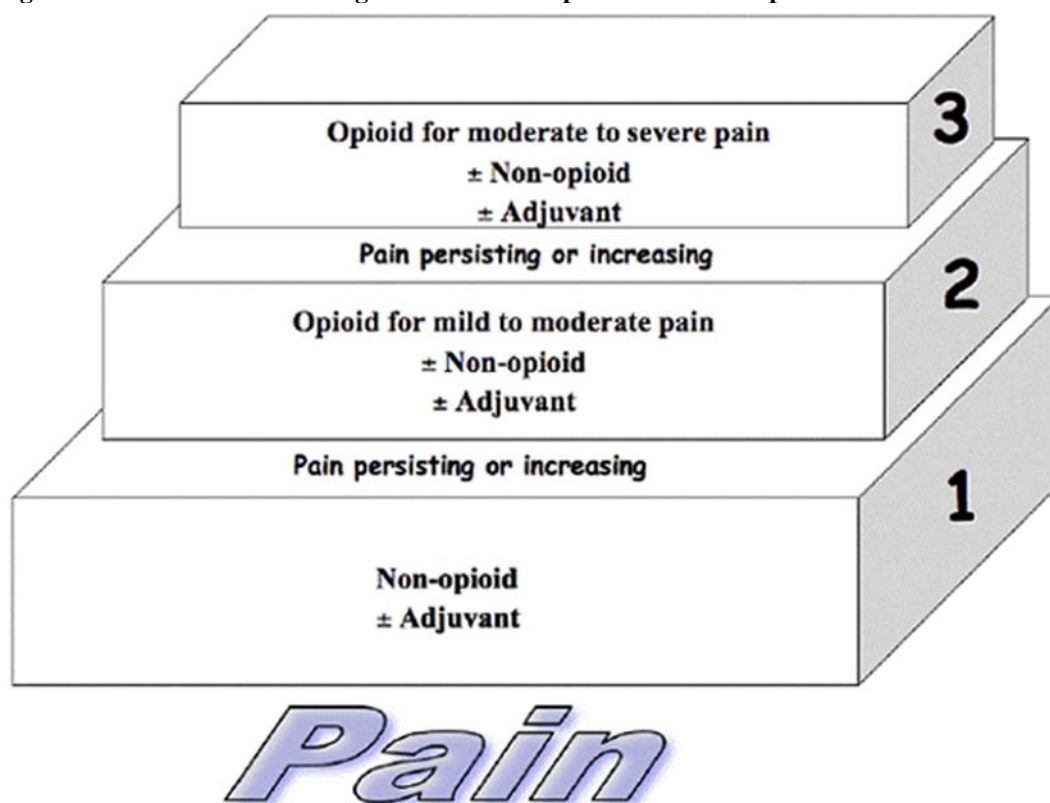


Figure 2: Article Selection

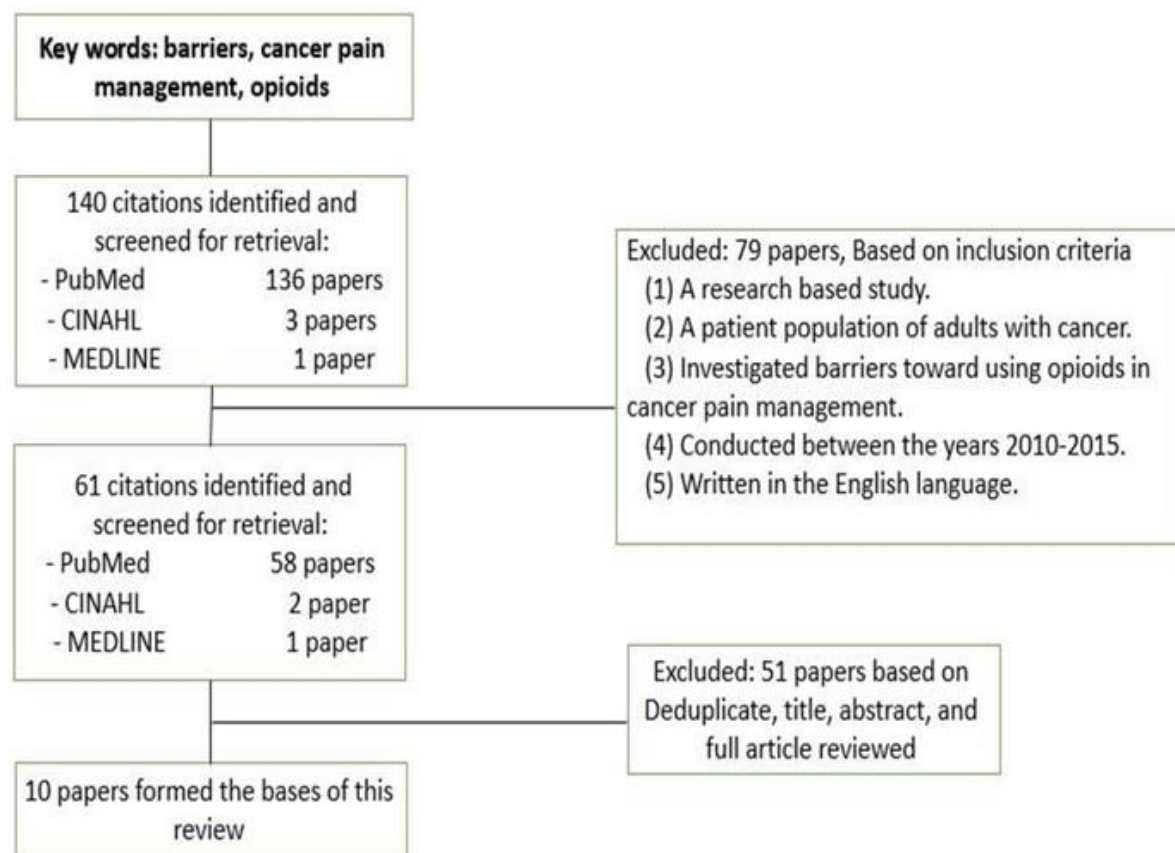


Table 1: Studies included in the review

No.	Citation Author, year	Purpose	Design	Sample size	Major Findings
1.	Breuer, Fleishman, Cruciani, & Portenoy, 2011	To evaluate the attitudes, knowledge, and practices of US medical oncologists that are related to management to cancer pain.	Descriptive study	610	The most important barriers to pain management were poor assessment and patient reluctance to take opioids or report pain. Others included physician reluctance to prescribe opioids and perceived excessive regulation.
2.	Khan, Ahmad, Iqbal, & Kamal, 2014	To examine Physicians knowledge and attitude of opioid availability, accessibility and use in pain management in Bangladesh	Descriptive study	1000	- 53% of the physicians were not aware of the 'Bangladesh Narcotics law, 1990'. 89% of the physicians would restrict opioid dosage in pain management to prevent drug tolerance or addiction. Oncology physicians displayed significantly higher knowledge scores.
3.	Kim, Park, H., Park, E., & Park, K., 2011	To evaluate the attitude and knowledge about the optimal use of opioids and finding out the barriers to cancer pain management especially for young doctors in South Korea.	Descriptive study	1204	- The degree of attitude and knowledge status was different as their specialties and personal experiences. The most important perceived barriers to optimal cancer pain management were the fear for risk of tolerance, drug addiction, side effects of opioid analgesics and knowledge deficit about opioid analgesics.
4.	Jho et al., 2014	To evaluate knowledge, practices and perceived barriers regarding cancer pain management among physicians and nurses in Korea	Descriptive study	333	Physicians perceived patients' reluctance to take opioids as a barrier to pain control, more so than did nurses, while nurses perceived patients' tendency to under-report of pain as a barrier, more so than did physicians.
5.	Atasoy et al., 2013	To explore the Practice	Descriptive study	100	- For pain assessment, only 35.4% of the

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		methods and the barriers to effective pain management.			physicians used a formal pain scale. - Of the respondents 34.1% were not able to reach the optimal doses of narcotic medications while managing cancer pain, mostly due to concerns about toxicity, such as constipation and nausea.
6.	Srisawang, Rashid, Hirose, & Sakamoto, 2013	To assess the knowledge and attitudes physicians and policy makers/regulators have regarding use of opioids for cancer pain management.	Descriptive study	219 physicians and 47 policy makers/regulators.	-physicians and policy makers/regulators had inadequate knowledge and negative attitudes concerning the proper use of opioids, and that there exist several barriers to opioid availability. - Physicians who had received education or training more recently were more likely to have adequate knowledge.
7.	Jacobsen et al., 2014	To compare pain management outcomes and patient-related barriers to cancer pain management inpatient samples from Denmark and Lithuania	Descriptive study	63	Pain relief and pain medication adherence were better in Denmark. Interventions in emotional distress and patient attitudes toward opioid analgesics may result in better pain management outcomes generally, whereas poor adherence to pain medication appear to be more country-specific problems.
8.	Colak, Oguz, Yazililar, Imamoglu, & Altinbas, 2013	To survey the attitudes of cancer patients towards morphine use for pain management	Descriptive study	488	- 50% of the patients who refused morphine use and 36.8% of the patients who would prefer another drug, fear of addiction was the basis for their decision
9.	Akiyama et al., 2012	To clarify knowledge about opioids, beliefs about palliative care, and concerns about homecare in advanced cancer patients.	Descriptive study	925	- 28% of patients believed that opioids are addictive and/or shorten life - Levels of patients' sense of security were significantly higher in those who agreed that "opioids can relieve most pain caused by cancer"
10.	Nguyen et al., 2013	To evaluate the frequency of self-reported opioid deviation and barriers to opioid pain management in outpatients with advanced cancer.	Descriptive study	198	- Low adherence scores were significantly associated with higher Barriers Questionnaire-II [BQ-II] scores. - Deviation was more frequent in males.