

# Morphine Consumption in a Tertiary Care Hospital in Eastern Nepal

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## ABSTRACT

**Introduction:** Oral morphine is extracted from a naturally occurring opium plant. It has been reviewed as a potent analgesic and according to the World Health Organization (WHO) its use is recommended as the drug of choice for the treatment of severe pain, including cancer pains and various other types of pains. However, a large proportion of doctors are hesitant to prescribe morphine because of the unfounded fear of addiction. The main aim of this study was to assess the morphine prescribing pattern of doctors in conformity with the international guidelines.

**Material and Methods:** The present study was a descriptive analysis of oral morphine prescriptions made within a 6 months period, between 2016 and 2017. All the prescriptions for the patients with pain under oral morphine in the hospital records were reviewed.

**Results:** The results showed that (53.6%) of all morphine prescriptions were from the Oncology Department/OPD, while the newly created Day Care Unit accounted for 43.9% of the prescriptions. Almost nil prescriptions were seen from the Labour ward. Only 1.2% of all the prescriptions conformed to international guideline

**Conclusion:** The results reflected that there was a need for more education and advocacy programmes to increase awareness among doctors about morphine prescriptions. The cancer study revealed the useful information related to epidemiology of cancer among both the genders in Nepal which will prove to be useful in health planning and future research.

**Keywords:** Morphine, Prescriptions, Doctors, Pain

1986 and updated in 1996.<sup>2</sup>

The prevalence of cancer has increased, with an estimated projection for 2020 of 17 million new cases which is suggestive of increase in individuals with pain caused by the disease and by treatment. The World Health Organization (WHO) developed the analgesic ladder as a treatment of cancer pain step by step and also recommended the use of non-steroid anti-inflammatory drugs for mild pain in the first, opioids for moderate pain in the second and potent opioids for severe pain in the third step. Adjuvant drugs may be needed in all steps.<sup>3</sup>

It was observed from the findings of a previous retrospective study, 1229 patients with cancer pain was treated with the analgesic ladder and was proven to be effective in reducing the pain only 71%. Most of the patients do not get sufficient pain relief because of the factors related to patients, healthcare institutions and regulatory policies on drug use. In another study, findings suggested that 32% of patients reported that the discomfort was so great that they preferred death. Despite the evolvement of knowledge about pain, more than 80% of patients with advanced cancer suffered from pain. In one of the systematic reviews, the author suggested that pain is undertreated in approximately half of patients.<sup>4</sup>

Few studies have been proposed as an alternative to WHO ladder and also suggested that opioids are prescribed inappropriately. In a review, it was observed by the

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## INTRODUCTION

According to the International Association for the Study of Pain's, it is defined as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage however, due to it being a multifarious, subjective phenomenon, defining pain is a challenging situation. In medical terms, pain is viewed as a symptom of an underlying condition. Pain, which is a common symptom of cancer is a persistent and life-altering condition, greatly affects the quality of life of cancer patients worldwide. In spite of the introduction of numerous guidelines and effective pharmacological interventions to manage cancer pain, poor assessment and under-treatment still remains a challenge.<sup>1</sup>

Up to 90% of patients with cancer experience pain at some stage of their cancer journey, with a third rating the intensity of their pain as moderate to severe, 1-3 to half being undertreated. The WHO analgesic ladder, which provides guidelines for the treatment of cancer pain, was published in

authors that WHO protocol does not use evidence-based recommendations. Some authors criticize the restriction of potent opioids for the third step. In a study of 5084 patients, 56% were having moderate to severe pain at least in a month. Management of better pain control and patient satisfaction could be obtained with the use of potent opioids as first medication. Because of these controversies, more studies are required to determine whether the use of morphine in the first step of the WHO ladder can improve the outcome or not.<sup>5</sup>

Morphine is viewed as an essential component of cancer care, reflecting a recent history where it has been viewed as the 'gold standard treatment' for management of cancer pain. This close association with cancer and end-of-life care has created a broad array of perceptions around the role of morphine and its effects. The perceptions of morphine and opioids presented in the literature have typically highlighted negative attitudes and barriers to morphine use, including fear, addiction, tolerance or associations with death. Understanding perceptions of morphine and the influences of these views is important to clinical care, as it is well established that personal experience and attitudes are important factors in acceptance and adherence to analgesia, pain reporting and psychological distress.<sup>6</sup>

Nepal has one of the lowest levels of development in the world, with a human development index of 0.463, placing it 157<sup>th</sup> of 186 countries in 2012. It is also struggling with a large burden of NCDs including cancer. For the last decade in Nepal, the development of palliative care services has steadily increased. Following the WHO public health model, efforts in Nepal have begun to bear fruit in the three forms of oral morphine (SR tablets, IR tablets and syrup) are now manufactured in the country.<sup>7</sup>

According to the literature, most patients with advanced cancer have at least two types of cancer-related pain which is derived from a variety of etiologies. The proper and regular self-reporting assessment of pain with the help of validated assessment tools is the first step for an effective and individualized treatment. The most frequently used standardized scale is a visual analog scale. As per recommendation by WHO, oral route is the preferred route of administration for cancer pain. When compared with parenteral morphine, hypotension and respiratory depression are rare with oral morphine.<sup>8</sup>

Despite doctors prescribing oral morphine some patients are not relieved completely from the pain. Hence, the need for the study was to look at the standards of practice in oral morphine prescribing patterns and also describes the pattern of cancer based on the cases that attended a tertiary care hospital unit in Eastern Nepal.

## MATERIAL AND METHODS

The present study was a non interventional cross-sectional study where the data was collected from the outpatient registry from 15<sup>th</sup> October 2016 to 13<sup>th</sup> Sept 2017 admitted to a palliative care unit in a tertiary care hospital of Nepal. Data was collected using specified proforma designed for the

purpose of the study. The study included all prescriptions on oral morphine in the hospital's pharmacy records within the stated period.

Data were collected on a spread sheet. The collected data are date of prescription, age of patient, ward or clinic from where prescription emanated and the dose, frequency, and total duration of use of the oral morphine. Adult patients prescribed with analgesics, hospitalized in oncology and general medicine ward, were included in the study. Patients who were below the age of 10 or hospitalized for short duration or have undergone major surgeries were excluded from the study.

Cancer cases diagnosed by all methods or treated during this period were identified from the inpatient registries maintained by the Department. Medical records of identified were reviewed and information regarding demographic data, date of diagnosis, method of diagnosis, primary site were retrieved.

## STATISTICAL ANALYSIS

The collected data was viewed with the help of SPSS software version 21 using simple manual analysis of frequency and percentage and data was computed in a tabular form.

## RESULTS

In the present study, about 879 prescription sheets made by medical doctors on oral morphine prescribed to patients, which were retrieved from the pharmacy records from the period October 2016 to September 2017. The doctors in the Oncology Department/OPD of the hospital wrote 472 (53.6%) of the prescriptions, while 434 (49.3%) came from the newly developed day care unit of the Hospital. These two units accounted for more than 80% of all the morphine prescribed in the hospital within the period. The Surgical Wards and Clinics contributed 74 (9.1%) of the morphine prescriptions. Otorhinolaryngology Department was responsible for 34 (4.5%) prescriptions made in the study period. Others (which included other departments) issued a total of 14 (1.6%) prescriptions on oral morphine. None of the morphine prescription was observed by authors from the Labour Ward and only 5 (1.2%) prescriptions contained the double dose. Table no. 1 shows the frequency of use 4 hourly was 52.9% of prescriptions followed by 6 hourly 35.2% of the prescriptions which means that maximum number of prescriptions were prescribed 4 hourly followed by 6 hourly. The frequency of use when given 8 hourly was 10.6% followed by 12 hourly 11.13% respectively.

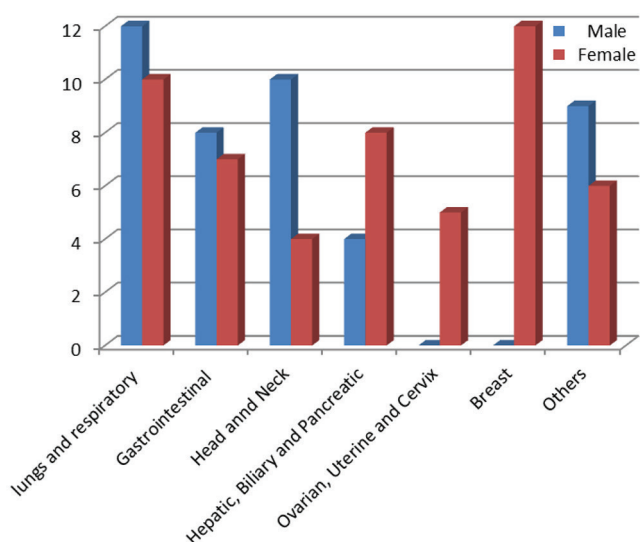
The age range of patients to whom oral morphine was prescribed varied between 10 and 80 years (mean of 42.64 years, standard deviation is 17.22). The dose range was 2.5–240 mg per dose. Duration of prescription ranged from 1 to 46 days with a mean of 10.23 days and standard deviation of 5.96 (Table no. 2). The distribution of cancer patients who attended the various departments of which 657 (52.3%) were males and 597 (47.6%) were females. Among them males (12%) were most frequently associated with cancer of respiratory system and females (5%) were confined to the

Frequency of Use	No. of Prescriptions	Percentage
4 hourly	465	52.9
6 hourly	310	35.2
8 hourly	94	10.6
12hourly	104	11.13
Total	879	100%

**Table-1:** Shows the duration of morphine prescriptions

Duration of Morphine Use	No. of Patients	Percentage
1-7 days	462	52.5%
8-14 days	269	30.6%
15-21days	75	8.53%
22-28 days	35	3.98%
>28 days	29	3.29%
Unknown	9	1.02%
Total	879	100%

**Table-2:** Shows the frequency of dose of morphine prescribed



**Graph-1:** Shows distribution of cancer sites based on gender among the study subjects

reproductive system cancers followed by digestive system cancers (7%) (Graph no. 1).

**DISCUSSION**

Morphine is viewed as an integral part of cancer care, reflecting a current history where it has been seen as the ‘gold standard treatment’ for cancer pain. This close association with cancer and end-of-life care has created a broad array of perceptions around the role of morphine and its effects. The perceptions of morphine and opioids presented in the literature have typically highlighted negative attitudes and barriers to morphine use, including fear, addiction, tolerance or associations with death. The studies have focused on the perceptions of health practitioners and cancer patients, but relatively very few are known about the views of the wider community on morphine use in cancer care.

Understanding concept of morphine and the influences of these views are important to clinical care, as it is well established that personal experience and attitudes are important factors in acceptance and adherence to analgesia,

pain reporting and psychological distress. A patient’s first episode of analgesia use has been identified as an area of particular importance, as it affects perceptions and patterns of ongoing analgesia use. To properly engage in this context at the time of morphine prescription, the condition and diversity of perspectives within which patients and families are embedded must be understood.<sup>9, 10</sup>

Morphine as opioids is often less prescribed as a result of the different combinations of the above stated observations. The results of inappropriate use of morphine by physicians are considerable and often deleterious. Patient suffers from pain in both acute and chronic conditions of cancer. Another important and perhaps equally important outcome is a gradual deterioration in the physician–patient relationship due to not get relieved by pain.<sup>11</sup>

Pain is always unpleasant for the patients who had undergone a surgery. Pain usually develops due to tissue damage. Satisfactory relief in pain restores the normal physiological function and prevents the development of chronic severe pain. Opioids are being used since long time for postoperative pain relief.<sup>12</sup>

This may lead to decreased confidence in the health care provider and results in poor compliance with treatment. This is why it is important to observe the rules of morphine prescription to ensure adequate control of pain. Sometimes when dose PRN (is referred to as pro re nata meaning as needed or when necessary) is usually inadequate to control chronic pain as this usually results in break through pain. Morphine must be prescribed to be taken at regular intervals (e.g., 4 hourly) and the dose titrated against the patient’s response and possible side effects. In addition, double dosing is recommended at bed-time to allow patient to have quiet sleep throughout the night. Delivering only the regular dose at bed-time may lead to sleep disturbing break through pain during the night.<sup>13</sup>

Although it was observed that studies has been conducted to evaluate for the increasing illicit use of morphine in some places, some former health care givers regard the use of high dose morphine as euthanasia. However, it has been shown that careful use of this powerful analgesic is beneficial in the correction of acute and chronic pain. It is therefore important that the appropriate use of morphine be emphasized as often as possible. In addition, non-use of opioids by physicians may also lead to more prescription of less effective analgesics and sedatives.<sup>14</sup>

Though morphine was accessible in the hospital during the study period, it was interesting to note that most of the prescriptions (over 80%) were written from the Dept of Oncology and the Palliative care teams. There was no prescription from the labour ward and very few numbers of prescriptions from the gynaecology and medical clinics and wards. The absence of the use of morphine in labour in the hospital may be related to several studies that have shown that morphine is not particularly very potent as an analgesic during labour unless administered intrathecally and these findings are consistent with the studies done by Scott et al.<sup>15</sup> It is important to observe the wide diversity of views



surrounding morphine, especially those new suggestions that support its ongoing place in cancer care. Pain in cancer patients and other chronic health conditions is generally undertreated, due to factors such as insufficient education of healthcare professionals, fear of adverse effects, exaggerated concerns about the risks of abuse and diversion, and complex and restrictive prescription regulations.<sup>16,17</sup>

## CONCLUSION

This study has observed that specialists in oncology and palliative care practice in this hospital has used morphine as a potent analgesia in the management of pain in their patients. However, the preference towards morphine prescriptions was found to be less. There is therefore a requirement to give continuous education to all health care providers in the use of morphine as a potent analgesic in the cancer care of their patients.

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