

# Study the different incidences of Tramadol in different cities of Punjab, Pakistan

**Aim and Objective:** The objective of this case series is to evaluate the effectiveness of Tramadol according to prescribe-rs and patient's feedback.

**Methodology:** A cross-sectional study to assess pain management practice among patients from different hospitals of Punjab. We conducted this study and collect data from August 2020 to October 2020. A total of 740 patients were included in our study and fulfilled the inclusion criteria.

**Results:** In our results, we find that consumption of opioids in different pain types and concluded that tramadol is the most used opioid among all other opioids. We also found its stability, safety, and efficacy parameters. We confirmed from our study tramadol is used mostly to treat acute musculoskeletal pain.

**Conclusion:** We concluded that tramadol has lower dependency as compare to other recent opioids and have more benefits.

**Keywords:** Tramadol • bio-availability • opioids

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## Introduction

The need for effective pain management remains high and prompt in low and middle-income countries due to fewer resources. According to the World Health Organization (WHO) estimates that more than twelve million people experience moderate to severe pain every year from ¼ have untreatable. Research has also shown that opioids have good treatment options for pain management but some such as morphine, hydrocodone and fentanyl have very limited use in many parts of the world, including the Asian region [1-3]. WHO Expert Committees advise the United Nations Commission on Narcotic Drugs about pharmaceutical agents that should be designated controlled substances i.e. have their manufacture, possession, or use regulated by a government on the basis of their individual therapeutic profiles and risk of abuse [4]. Tramadol is a synthetic opioid analgesic and is chemically trans-2 (dimethyl aminomethyl)-1-(m-methoxyphenyl) cyclohexanol hydrochloride. It is a centrally active analgesic, which is used orally and parenterally for the relief of moderate to moderately severe acute or chronic pain, including post-operative, gynecologic, and obstetric pain, as well as pain of various other organs, including cancer [5]. Tramadol is available as oral as well as parenteral dosage forms and is one of the commonly prescribed analgesics in hospital

settings. Tramadol has been used to treat moderate to moderately severe cancer and non-cancer pain for several decades. It has been assessed several times by the WHO, but in each case, it was decided not to bring it under international control [3,6-8]. As an analgesic, tramadol is approximately equipotent as codeine and has about 10% of the potency of morphine after parenteral administration. Because tramadol has a higher oral bioavailability than morphine, the relative potency of oral tramadol should be about 20% of that of oral morphine. In a recent review carried out by a German expert committee, the authors confirmed the analgesic efficacy of tramadol, with strong evidence from systematic reviews and international guidelines on acute and chronic pain management. Tramadol is marketed as the hydrochloride salt and is available in a variety of pharmaceutical formulations for oral (tablets, capsules), sublingual (drops), intranasal, rectal (suppositories), intravenous, subcutaneous, and intramuscular administration. It is also available in combination with acetaminophen (under the brand name, Sologesic Extra). Tramadol is almost completely absorbed after oral (>90%), rectal and intramuscular administration. Average bioavailability is 70%, irrespective of current food intake. Peak plasma concentrations after oral, rectal, and intramuscular administration are reached in 1-2 hours, 3 hours, and 45 minutes, respectively [9-11].

## Methodology

A cross-sectional study to assess pain management practice among patients from different hospitals of Punjab. Hospitals included in this study were Nishtar Hospital Multan, DHQ Hospital Sargodha, Allied Hospital Faisalabad, and some outdoor patients from Hameed Latif Hospital Lahore. We conducted this study and collected data from August 2020 to October 2020. All patient's visits to these hospitals with pain during our study time frame were included in our study. Total 2170 patients registered in our study in the first phase, but after screening data through our standard sets according to the objective of our study 1430 patients were further excluded from the study and 740 patients were included in our study and full-filled the inclusion criteria. The technique was to interview patients and observation (the measurement of vital signs, pain assessment, and chart review). we also partially dependent on Health care Physicians decisions regarding pain management and relief because patients have direct contact with HCPs. Independent assessment of pain at set times was conducted using a standard tool for assessment of the clinical practice of pain management, pain (onset, type, intensity, worst), pain aggravating conditions, non-pharmacological management of pain. Finally, review of the patient chart was done. The quantitative variables were age (measured to nearest year), temperature, respiratory rate, pulse rate (measured in number per minute). The qualitative variables were sex, literacy, chief complaint, pain, pain aggravating conditions, non-pharmacological management of pain, and analgesics (type, dose, pattern, and route).

**Inclusion criteria:** Patients who are presenting complaints of purely pain, able to communicate, and willing to participate in the study.

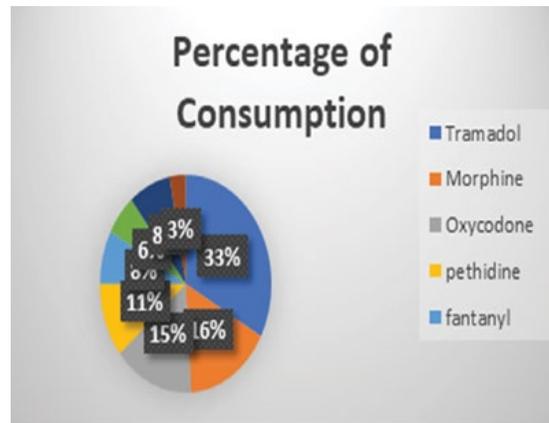
**Exclusion criteria:** Patients who have multi disorders and pain due to any other reason like an accident or wound etc were excluded from our study.

**Data collection:** Began on 1 Aug 2020 and ended on 30 Oct 2020. Each included patients were followed and collect data by interview and HCPs opinions. Information was collected from each patient at set times.

**Data analysis:** Results from the patient interview, pain assessment, and chart review were cleaned, coded, and entered into computer WPS Spreadsheets and MS Excel. Ethical clearance was obtained from the ethical committee and a letter of cooperation was submitted for the hospital administration before data collection.

## Results

**Consumption of Opioids:** In results first of all we evaluate the consumption of Opioids in Pakistan populations as shown in Figure 1. Now The questions were formulated to identify their individual reasons for prescribing tramadol and the Percentage of consumption of tramadol according to different senior prescribers the conditions for which they prescribed it, as well as the significance of tramadol



**Figure 1: Percentage of consumption of tramadol according to different senior prescribers**

in the management of pain and the likely impact of tighter regulation on treatment.

According to experts, tramadol is used in the management of moderate to severe acute and chronic pain caused by a wide range of conditions. Their rating of the significance of tramadol as a treatment option for various pain indications. Most of them rated it as significant or highly significant in managing this condition. Important factors influencing their choice of analgesic was tramadol's efficacy in both nociceptive and neuropathic pain. Respondents from Pakistan, Indonesia, and India also stated that there is limited or no availability of controlled opioid analgesics in their countries. Although tramadol does not have the same potency as strong opioid analgesics such as morphine for treating severe cancer pain, tramadol is often the only option available. Use of Tramadol in different pain conditions. Every one of the respondents considered tramadol to be either significant or highly significant in the treatment of moderate to severe non-cancer pain in their home country. It is considered an alternative to NSAIDs or strong opioids, particularly suitable for elderly patients or those with poor liver and/or renal function. Factors contributing to this rating included its efficacy in mixed pain (i.e. with nociceptive and neuropathic components), and its favorable benefit/risk ratio in prolonged use. It was specifically noted that the safety issues associated with NSAIDs often limit their use, particularly in chronic pain patients and the elderly, so Tramadol is frequently substituted as an approach which is reflected in the current literature as shown in Figure 2.

**Reasons for prescribing tramadol:** There are different reasons for prescribing tramadol i.e. efficacy, safety, and tolerance, and low ADRs as compare to other opioids according to our study targeted HCPs. The main reason for choosing tramadol to manage pain in Pakistan reflected by its high usage is the wide-ranging effectiveness resulting from its unique multimodal mechanisms of action, which are well established. The responses confirm that tramadol effectively treats both acute and chronic pain, as well as nociceptive and neuropathic pain. This makes it particularly valuable for managing pain states such as cancer pain and

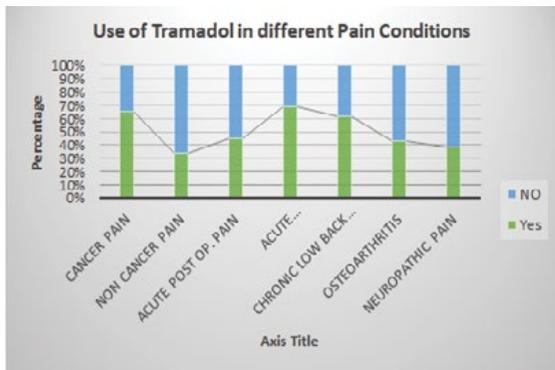


Figure 2: Use of tramadol in different pain conditions

Patients	Frequency of tramadol use	Male	Female	Total percentage
318	>3 in last year	188(59%)	130(49%)	43%
281	>2 in last year	160(57%)	121(43%)	38%
141	Start recently	86(61%)	55(39%)	19%

chronic low back pain, which often have both nociceptive and neuropathic components. In the case of chronic pain, its risk-benefit profile in long-term use offers advantages over other drugs, such as NSAIDs.

**Safety and tolerability:** Another decisive factor in the choice of tramadol is its safety profile. It is frequently chosen in preference to NSAIDs, which may cause renal and gastrointestinal impairment in long-term use. Selective COX-2 inhibitors and especially NSAIDs are associated with an elevated risk of severe gastrointestinal, renal, and cardiovascular side effects 29-32, and the risk increases with the duration of treatment. It is therefore recommended that the lowest dose of these agents to control symptoms should be prescribed for the shortest time. Tramadol is not associated with these side effects, and several responders specifically cited its suitability for long-term use in patients with chronic pain as a strong influence on their choice of analgesic.

Prescribing tramadol frequency in different patients: Tramadol is a weak opioid and prescribed by HCPs frequently irrespective of its dependence and tolerance issue. In our study total of 740 patients were included, by interviewing and past history we found that 43 percent of patients use tramadol more than thrice in a year and 38 percent of patients use more than twice in last year, and the rest use this first time but response its effective and treat well as shown in Table 1.

### Discussion

Tramadol has become the analgesic mostly frequently used in the treatment of moderate to severe lower back pain. It is easily available and relatively cheap. This survey indicates that the utilization of tramadol is based upon several factors:

- This has proven efficacy against cancer and non-cancerous

pain which was proved by HCPs response through our study.

- Have more safety and tolerability compared to NSAIDs and strong opioids.
- Ease of storage and prescription compared to controlled strong opioids due to low-risk factors.
- After a major surgery, it can be used as a step-down analgesic following patient-controlled or epidural analgesia.

One Orthopedic surgeon with more than 25 years of experience from FMU, Faisalabad also comments on Tramadol that “Tramadol is also an effect when used in chronic pain like Sciatica and Rheumatoid disorder when simple analgesics fail to relieve the pain. It is also used in combination with other analgesics and muscle relaxants to enhance the response” (MJJ).

The expert’s responses clearly indicate that tramadol is a valuable option to treat moderate to severe pain of diverse origin major lower back pain. It is prescribed when non-opioids such as paracetamol, NSAIDs, and COX-2 inhibitors provide insufficient analgesia, are not tolerated, or are contraindicated, and where strong opioids are not justified or are unavailable or others have more risk. This use is reflected by tramadol being included in a number of national and international guidelines and is in line with its role in therapy as described in the international literature and World health organization [15]. Tramadol is used frequently as an alternative to NSAIDs because it has fewer side effects on the kidney or stomach, which explains its wide usage in older adults or patients with the comorbid disease. There were more women than men in the total study population, and in patients who were prescribed tramadol twice or more a year, and older age groups comprised a high proportion of the study population. This is probably due to the high prevalence of Low back pain (LBP) in women and in those of older age in the 40 to the 99-year group. The increase in tramadol prescriptions in general surgery or orthopedics departments implies that it is prescribed to achieve adequate pain relief, due to increased post-operative pain severity. This may explain why surgery or procedures are factors that are associated with ED users [16-18].

### Conclusion

Tramadol or tramadol-containing analgesics play an important part in the pharmacological management of moderate to severe pain. It provides a stronger and for many patients a safer alternative to high doses of NSAIDs or low doses of morphine, oxycodone, or other strong opioids. Health care providers also prefer tramadol on other analgesics in severe pain management. We also concluded that tramadol has lower dependency as compare to other recent opioids and more benefits, so, the use of tramadol in moderate to severe lower back pain is highly recommended.

### Authors contribution

MA conceived the study and primary wrote the manuscript. MJI and RG helped to draft the manuscript. AMK, MJR, and MA collected the patient data from different centers and summarized it in a suitable form. MA performed

the statistical analysis. All the authors approved the final version of the manuscript.

### Acknowledgment

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**Executive summary**

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**References**

1. Seya MJ, Gelders SFAM, Achara OU, et al. A first comparison between the consumption of and the need for opioid analgesics at country, regional, and global levels. *J Pain Palliat Care Pharmacother* 25: 6-18 (2011).
2. Cleary J, Silbermann M, Scholten W, et al. Formulary availability and regulatory barriers to accessibility of opioids for cancer pain in the Middle East: a report from the Global Opioid Policy Initiative (GOPI). *Ann Oncol* 24: xi51–xi59 (2013).
3. Duthey B, Scholten W. Adequacy of opioid analgesic consumption at country, global, and regional levels in 2010, its relationship with development level, and changes compared with 2006. *J Pain Symptom Manage* 47: 283-297 (2014).
4. Raffa RB, Friderichs E. The basic science aspect of tramadol hydrochloride. *Pain Rev* 3: 249-271 (1996).
5. Expert Committee on Drug Dependence, Tramadol Update Review Report. Geneva, *World Health Organisation* (2014).
6. Frink MC, Hennies HH, Englberger W, et al. Influence of tramadol on neurotransmitter systems of the rat brain. *Arzneimittelforschung* 46: 1029-1036 (1996).
7. Dayer P, Desmeules J, Collart L. Pharmacology of tramadol. *Drugs* 53: 18-24 (1997).
8. Gillen C, Haurand M, Kobelt DJ, et al. Affinity, potency and efficacy of tramadol and its metabolites at the cloned human mu-opioid receptor. *Naunyn Schmiedebergs Arch Pharmacol* 362: 116-121 (2000).
9. Section 2.2- Opioid Analgesics, National List of Essential Medicines of India. 34 (2011).
10. Section 1.8.2-Opioid Analgesics, Philippines National Drug Formulary, Essential Medicines List . 7 (2018).
11. World Health Organisation, WHO Technical Report Series: The Selection and Use of Essential Medicines. Geneva: *World Health Organization* 48: (2017).
12. Merchante IM, Pergolizzi JV, Laar MVD, et al. Tramadol/Paracetamol fixed-dose combination for chronic pain management in family practice: a clinical review. *ISRN Family Med* 1-15 (2013).
13. Schug SA. The role of tramadol in current treatment strategies for musculoskeletal pain. *Ther Clin Risk Manag* 3: 717-723 (2007).
14. Furlan AD, Sandoval JA, Gagnon AM, et al. Opioids for chronic noncancer pain: a meta-analysis of effectiveness and side effects. *CMAJ* 174: 1589-1594 (2006).
15. Ministry of Food and Drug Safety. Narcotics control act. 2016. Accessed (2019).
16. Rash JA, Buckley N, Busse JW, et al. Healthcare provider knowledge, attitudes, beliefs, and practices surrounding the prescription of opioids for chronic non-cancer pain in North America: protocol for a mixed-method systematic review. *Syst Rev* 7: 189 (2018).
17. Rice JB, White AG, Birnbaum HG, et al. A model to identify patients at risk for prescription opioid abuse, dependence, and misuse. *Pain Med* 13: 1162-1173 (2012).
18. Davies EA, O'Mahony M. Adverse drug reactions in special populations the elderly. *Br J Clin Pharmacol* 80: 796-807 (2015).