International Journal of Enhanced Research in Medicines & Dental Care (IJERMDC),
ISSN: 2349-1590, Vol. 11 Issue 1, January 2024, Impact Factor: 8.325

Drug Utilization Evaulation of Analgesics among In-Patient of Tertiary Care Hospital

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ABSTRACT

Background: Analgesic is a drug which selectively reduces or relieves the pain sensation by acting on CNS or peripheral system without altering consciousness. The fundamental objective of my study is to evaluate the drug use pattern among the inpatient in a tertiary care hospital. This study focuses on prescribing pattern of analgesic and also creates awareness about the OTC analgesic and their side effect. The study conducted on patients for whom at least one analgesic is prescribed were included in the studies in a hospital.

Results: In 300 patients prescribed with analgesics, majority number of patient ie.57.6% were (173) males and 42.34%(127) were females. The usual co-morbidities were Diabetes and Hypertension in which 31.7% were with comorbidities and 68.3% were without comorbidities. The most frequently prescribed analgesic drugs were paracetamol (68.67%), tramadol (24%), diclofenac (21%) followed by aceclofenc (7.33%). The department wise distribution of use analgesic was more in orthopaedics (32.33%) and less in general medicine (19%).The duration of analgesic prescribed for less than 3 days was 171 and 4-6 days was 120 and 7-10 was 9 patients.

Conclusion: The present research studies give important recommended views into overall pattern of analgesic drugs used in in-patient in a tertiary care hospital. The analgesic prescribed mostly and more frequently was paracetamol (68.67%) and Tramadol was 24%. To avoid the unnecessary use of analgesic drugs physician should be encouraged to decrease use of generic name which may increase incidence of other health problems.

INTRODUCTION

Drug utilization evaluation (DUE) was defined by the world health organization (WHO) in 1997 as the marketing, distribution, prescription and use of drug in a society with emphasis on the resulting medical, social and economic consequences[1]

Before administrative measures are implemented to improve drug usage patterns that do not match these standards, the quality of medicine prescribing is assessed according to predetermined standards.

Analgesics are painkillers that have minimal effects on sensory function or nerve impulse conduction. In clinical practise, non-steroidal anti-inflammatory drugs (NSAIDs) are a class of analgesics that are frequently used to treat mild to moderate pain and inflammation. [12,13] NSAIDs are the most often prescribed class of drugs worldwide and are most frequently used for the efficient management of pain and inflammation.

Additionally, they are sold over-the counter. The researchers were able to achieve their goal by interfering with the cyclooxygenase (COX) pathway, which entails the enzyme (COX) converting arachidonic acid to prostaglandins. The COX enzyme comes in two variants. Two of the most prevalent cytochrome oxidase enzymes are COX-1 and COX-2.

AIM AND OBJECTIVE

Aim

To study the drug utilization pattern of analgesics among inpatient of tertiary care hospital.

Objective:

To evaluate drug use pattern of analgesics among in-patients of tertiary care hospital

- To analyse the drug- drug interactions from the prescriptions.
- To assess indications for which Analgesic are prescribed.
- To assess the prescribing pattern of analgesics from the prescriptions. To create awareness about the OTC analgesics and their side- effects by long term usage.

METHODOLOGY

Duration of Study

The study was conducted for a period of six months.

Study Design

A hospital based cross-sectional observational study design.

Site of Study

The study was conducted at Sapthagiri Institute of Medical Science and Research Centre Bangalore.

STUDY CRITERIA

Inclusion Criteria: -

Patients to which at least one analgesic is prescribed

Exclusion Criteria: -

Patient who are not willing to participate in the study.

Patients who are not treated with analgesics.

Pregnancy and lactating women

Method of Collecting Data

The data required for the study has collected by reviewing the prescription list and patient case sheet

The data's collected have noted in a self-designed patient data collection form.

Study Procedure

Patient who fulfils the inclusion criteria were enrolled in the study with their consent.

Patient demographic details, past medical and medication history, family history, laboratory data and medication chart were obtained and recorded.

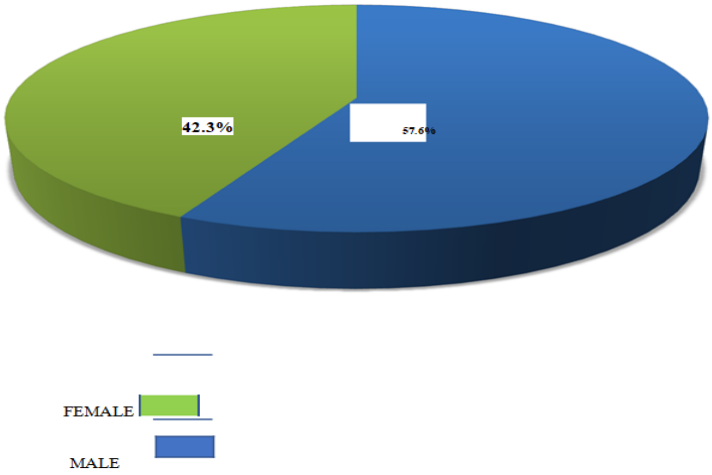
Prescribing pattern, indications for which analgesics are given, potential drug-drug interaction were determined from the collected data to analyze the prescribing pattern.

All these collected data were subjected to appropriate statistical method. The statistical analysis of collected data was performed using IBM SPSS version 26 statistical software.

RESULTS

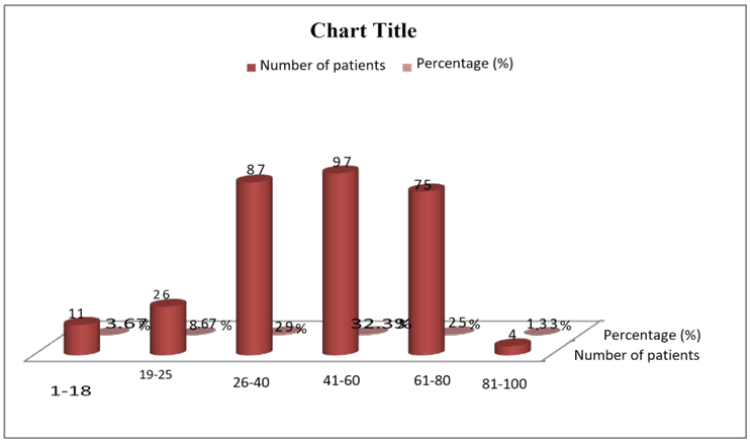
Gender Distribution

Out of 300 cases selected 173 (57.6%) was found to be males and 127(42.3%) females.



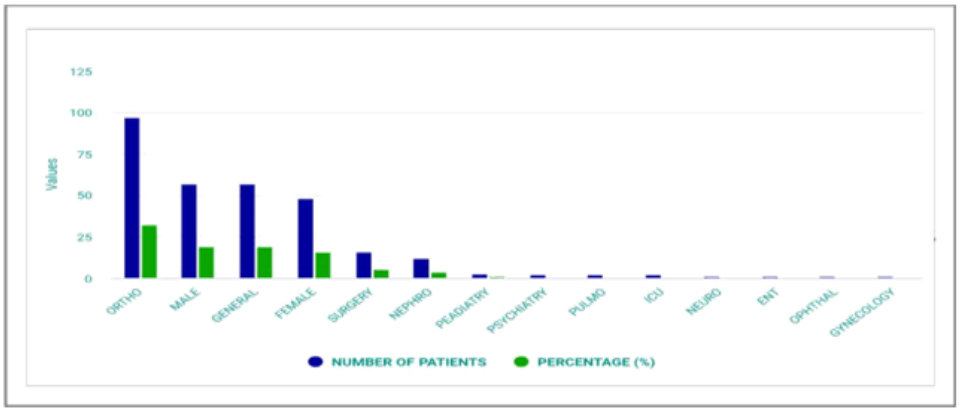
Patients Age Wise Categorization

Out of 300 cases, the patients are divided into 6 categories according to their age. The patients aged between 41-60 years was found to be the highest (32.3%) admitted patients and the least (1.33 %) were found between the age group of 81-100 years.



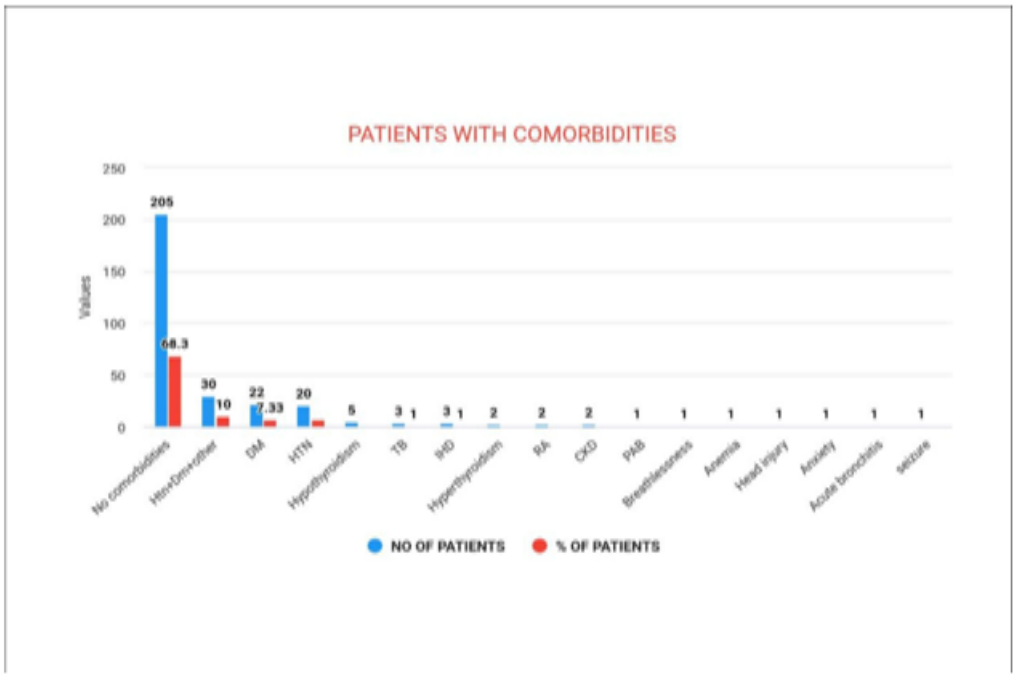
Department Wise Distribution of Analgesic

The majority of patient was admitted to Orthopaedic department which consist of 32.33% of total patient and least was from Gynaecology, Ent, Ophthalmology and Neurology containing 0.33%.



Patient with Comorbidities

The highest number patients containing more than 2 co-morbidity diseases was 30 patients (10%) and the patient with no co-morbidities was 205 patients (68.3%).



Classifications of Patients Based on Drug Therapy

In my study, the patients were divided on the basis of mono analgesic drug therapy and combined analgesic drug therapy.

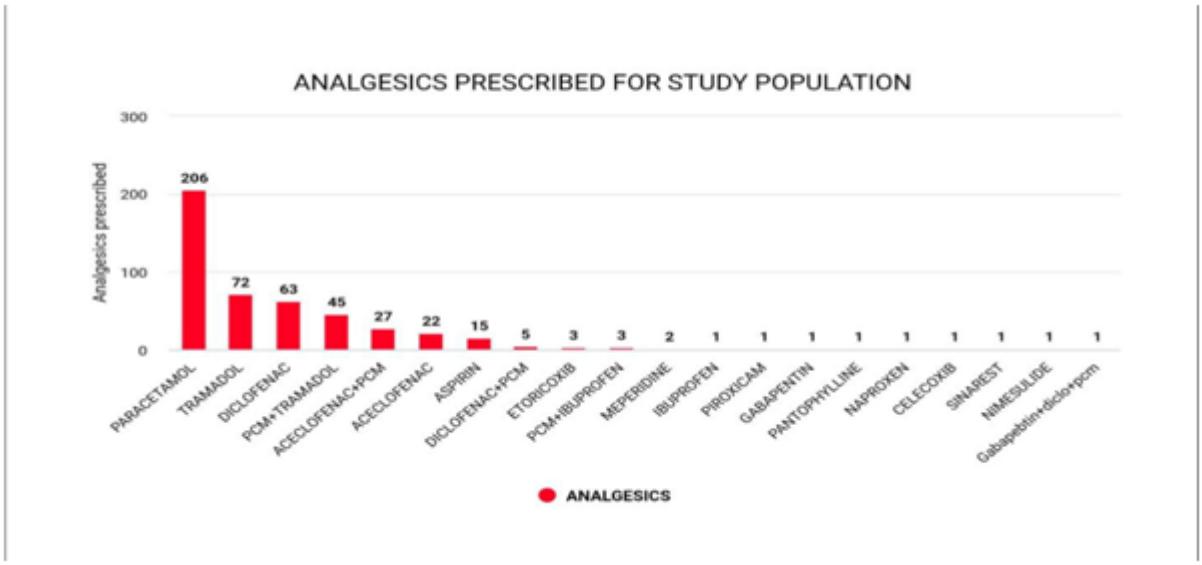
Out of 300 patients 158(52.67%) was prescribed with mono analgesic drug therapy and 142(47.3%) were prescribed with combined analgesic drug therapy.

Table: -5 Patient with mono drug therapy and combine drug therapy

THERAPY	NUMBER	PERCENTAGE
Monotherapy	158	52.67%
Combine therapy	142	47.3%

Analgesic Prescribed for the Study Population

The majority amount of analgesic drug used was paracetamol (68.67%) and least amount of analgesics used, Where-PCM+IBUPROFEN, IBUPROFEN, PIROXICAM,GABAPENTIN, PANTOPHYLLINE, NAPROXEN, GABAPENTIN+ DICLOFENAC +PCM, CELECOXIB SINAREST and NIMESULIDE .



Frequency of Interacting Drugs

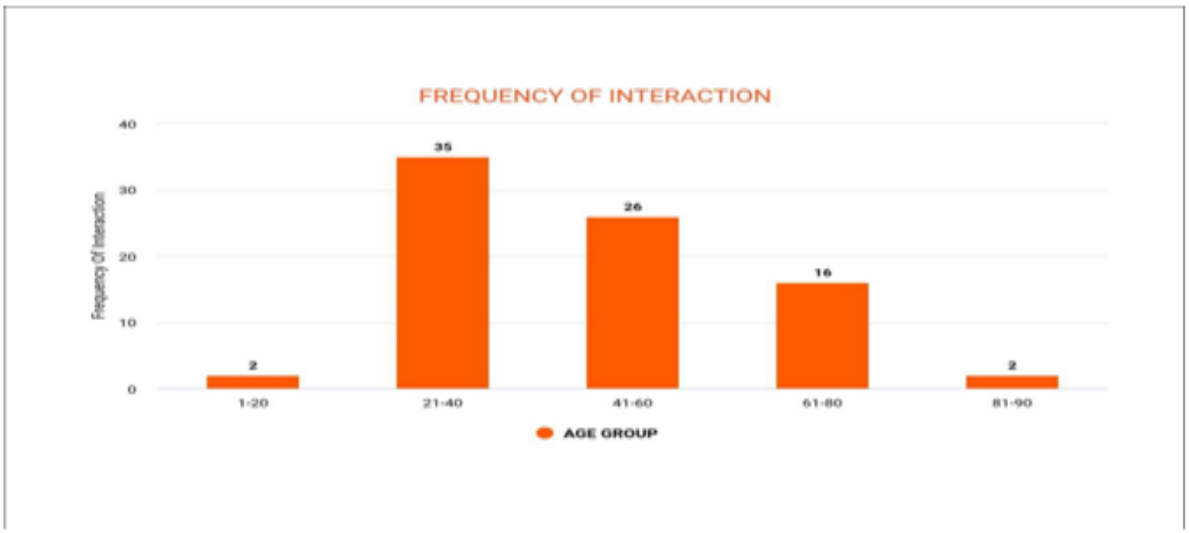
The highest amount of major analgesic drug interaction was found to be Aceclofenac+Diclofenac which was interacted in 10 patients followed by Tramadol+Linezoid for 5 patients. Telmisartan+Aspirin, Aceclofenac+Amikacin, Alprazolam+Tramadol and Diclofenac+Amikacijn for 2 patients each.

Frequency of interacting drug

INTERACTING DRUGS	FREQUENCY OF INTERACTION
ACECLOFENAC+DICLOFENAC	10
TRAMADOL+LINEZOID	5
ALPRAZOLAM+TRAMADOL	2
DICLOFENAC+ENOXAPARIN	1
SPIRONOLACTONE+DICLOFENAC	1
AMITRIPTYLINE+TRAMADOL	1
ENOXAPARIN+ACECLOFENAC	1
ACECLOFENAC+BUDESONIDE	1
ASPIRIN+SPIRONOLACTONE	1
ASPRIN+PROPRANOLOL	1
TELMISARTAN+IBUPROFEN	1
NORTRIPTYLINE+TRAMADOL	1
METOPROLOL+DICLOFENAC	1
TRAMADOL+NOREPINEPHRINE	1
ASPIRIN+GLIMIPRIDE	1
TELMISARTAN+ASPIRIN	2
ASPIRIN+FUROSEMIDE	1
ASPIRIN+AMIKACIN	1
LEVALBUTEROL+TRAMADOL	1
ACECLOFENAC+AMIKACIN	2
ACECLOFENAC+LEVALBUTEROL	1
DICLOFENAC+AMIKACIN	2
DICLOFENAC+OFLOXACIN	1
DICLOFENAC+LEVALBUTEROL	1

Age Group of Patients with Interaction Frequency

The most frequency of interaction was found in between age group of 21-40 and the least was found to be in age between 81-90 and 1-20.

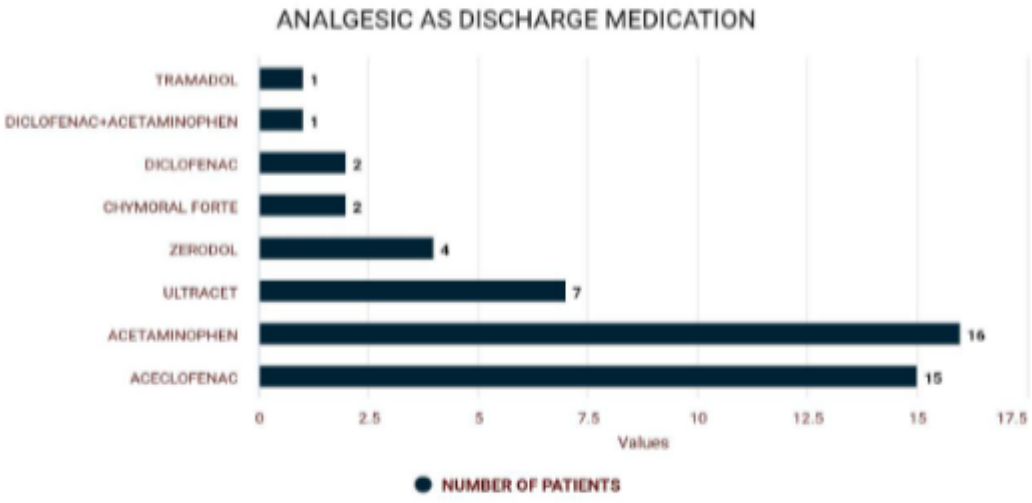


Duration of Analgesic Prescribed

The duration of analgesic prescribed for less than 3 days was found to be 171 which is highest in number and least duration of analgesic prescribed was 7-10 days for 9 patients.

DURATION OF DAYS	FREQUENCY OF ANALGESICS
LESS THAN 3	171
4-6	120
7-10	9

Analgesic as Discharge Medication



TO ASSESS INDICATION FOR WHICH ANALGSICS ARE PRESCRIBED

DRUGS	INDICATION
TRAMADOL	MODERATE TO SEVERE PAIN
ACETAMINOPHEN	PAIN AND FEVER
ACECLOFENAC	PAIN AND FEVER
ASPIRIN	PAIN, FEVER, ANTIPLATELET
IBUPROFEN	FEVER PAIN
DICLOFENAC	ARTHRITIS AND PAIN
PIROXICAM	ARTHRITIS
ETORICOXIB	PAIN AND INFLAMATION
MEPERIDINE	MODERATE TO SEVERE PAIN
GABAPENTIN	POST-OPERATIVE NEUROPATHEIC PAIN
PENTOXYPHYLLINE	CLAUDATION TO REDUCE PAIN
NAPROXEN	ARTHRITIS PAIN
CELECOXIB	ACUTE ARTHRITIS PAIN

To Creat Awareness about the OTC Analgesics and Their Side Effects by Long Term Usage

Awareness

1.	Analgesic drug do not work for all kind of pain.
2.	Analgesic drug do not work for all kind of people.
3.	Higher dose of analgesic are not more effective.
4.	If you have been taking analgesic drugs for more than 3 months and you still have same amount of pain, they are probably not coping to work for you.
5.	Make your appointment with doctor and pharmacist to discuss reviewing your medicine and find other way to live well with pain.

Side Effects

Long term use of analgesic drug causes addiction (opioid analgesic) to the patient.

Long term usage of analgesic drug makes us dependence up on the drug.

Analgesic drug may causes internal stomach bleeding (eg. aspirin), liver damage (paracetamol), kidney problem (ibuprofen), high blood pressure and stomach ulcer on their long-term use.

DISCUSSION

The study was carried out with the aim to analyse the drug utilization pattern of analgesic drugs among in-patient of tertiary care hospital.

A prescription-based study is considered to be the most effective methods to asses and evaluate the prescribing attitude of physicians and dispensing practice of good pharmacist.

The result of our study suggest that analgesic is more prevalent in male (57.6%) than in female (42.3%) which is similar to the study conducted by Dwijen Kumar Chaudhary, Babul Kumar Behbarah et al., in which 61.5% male and 38.5% female were prescribed with analgesic drugs. (24)

Our findings provided that analgesic drugs are mostly prescribed in the age group of 41-60(32.33%) which is similar to the study conducted by O. joyechandra, joymati oinam, N. debashree and losica et al., in which analgesic drugs were mostly prescribed in the age group of 41-50 years. (29)

Our study shows the majority of patients were admitted to orthopaedic department (32.33%) which is similar to the study conducted by P, Maheshwari, Praveen D, V. Rabichandra in which 46% was admitted to the orthopaedic department. (41)

Our study shows that disease condition with co-morbidities that affect the prevalence of analgesic drug,10% of the patient suffered from HTN with DM and others followed by 7.33% suffer from only DM and least was anemia, anxiety, seizure and acute bronchitis and 68.3% of patients didn't have any comorbidities.

Our study shows that 158(52.67%) of the patient were prescribed with mono analgesic drug therapy, followed by 142(47.3%) of the patient were prescribed as combined analgesic drug therapy which is similar to the study conducted by Dwijen Kumar Choudhary et al., where out of 200 study patient (55.5%) were prescribed with single analgesic. (24)

Our study shows most commonly prescribed drug is paracetamol (68.67%) followed by Tramadol (24%), diclofenac(21%), PCM with Tramadol (15%),aceclofenac(7.33%), aceclofenac with paracetamol was 9%, and aspirin 5% which is similar to the study conducted by Abebaw teenage et al., in which paracetamol 36.9% was most prescribed followed by diclofenac (26.6%) and similar to T. Kumarasingam, et al., where Tramadol (37%) was mostly prescribed.

In our study the most frequency of interaction was found in between age group of 21-40(35) followed by 41-60(26) and least was found to be age between 81-90(2). In our study the duration of analgesic prescribed for less than 3days was found to be 171 which is highest in number and least durations of analgesic prescribed was in 7-10 days for 9 patients. Our study shows most commonly prescribed analgesic drug as discharge medication is Acetaminophen (16).

In our study analysis for moderate to severe pain tramadol and meperidine were the most prescribed drug followed by for pain and fever acetaminophen and aceclofenac, aspirin for fever and for JIA ibuprofen, for arthritis and pain diclofenac and naproxen, for arthritis piroxicam, for pain and inflammation etoricoxib, for post-operative neuropathic pain gabapentin, for claudication to reduce pain pentoxyphylline and for acute arthritis pain celecoxib were prescribed.

CONCLUSION

In the conclusion of patient result and in the studies, we have found that higher prevalence of analgesic was used in males than female. As a result, male may be more vulnerable to side effect and dependency to analgesic. Some of the gender difference is explained by greater prevalence of pain problems among male than female but there is still a significant difference in use of analgesic which has to be explained.

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