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Original Research Article

Drug utilization pattern of analgesics as a teaching tool for rational therapy to MBBS students in a medical college at Dehradun, Uttarakhand, India

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ABSTRACT

Background: As a need to introduce Clinical Pharmacology at the undergraduate level the drug utilization studies (DUS) offer useful methods for teaching and training in drug therapy. The indiscriminate use of medicines results in unwanted side effects, drug interactions. Thus keeping this view in mind, this drug utilization research was set to evaluate the prescribing pattern of analgesics to impart certain basic skills to MBBS students which will form an integral component of practicing rational therapeutics.

Methods: The retrospective study was conducted by Pharmacology department in SGRRIM and HS. A total of 726 prescriptions were collected by 2nd professional MBBS students entering 5th semester and randomly evaluated for prescribing pattern using WHO drug use indicators.

Results: A total of 726 prescriptions were analyzed. Male:Female ratio was 470:256(1.8:1). Age wise distribution of patients 0-15years 122(16.80%), 16-30 years 139(19.41%), 31-45years 242 (33.33%), 46-60 years 113(15.56%) and >60years 110 (15.15%). A total of 4663 drugs were prescribed. 435(9.32%) were analgesics. 208 (47.81%) Paracetamol, 66 (15.17%) Tramadol, 62(14.25%) Aceclofenac, 51 (11.72%) Diclofenac, 46 (10.57%) Ibuprofen and 2(0.45%) Buprenorphine were prescribed. 301 (69.20%) Oral drugs and 134 (30.80%) Injectable were prescribed. 108 (24.83%) Numbers of Fixed dose combinations. 0.60 of analgesics were prescribed per prescription. 381 (87.59%) analgesics were prescribed from National Essential Medicine list 2015. 369 (84.83%) drugs were prescribed by brand names.

Conclusions: The main purpose of undergraduate medical curriculum is to develop the requisite diagnostic and therapeutic skills of a basic doctor. Such type of drug utilization studies is set with the objective to encourage rational prescribing, and to identify good and bad prescribing practices.

Keywords: Analgesics, Drug Utilization, Rational prescribing

INTRODUCTION

Pain is the most common symptom prompting patients to seek medical attention and is reported by more than 80% individuals who visit their primary care health provider.[1] According to International Association For The Study Of Pain, it is "An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage". Furthermore pain is always subjective.[2] Pain Assessment is the cornerstone to optimal pain management. Pain can influence all areas of a person's life including sleep, thought, emotion and activities of daily living. Successful Pain Management is an attainable goal for the greater part of patients with acute or chronic pain. Analgesics are defined as the drugs that relieves pain without blocking nerve impulse conduction or markedly altering sensory function.[3] Irrational Prescribing of analgeiscs is a common incidence in medical practice. The study of prescribing pattern is a significant constituent of medical audit which helps in monitoring, evaluating and building

required modifications in the prescribing practise to attain a rational and cost effective medical care.

Drug utilization is a one time study to evaluate appropriateness of drug therapy. Now adays drug utilization studies (DUS) are used as a potential tool in evaluation of the health care systems. As it is difficult to understand the rational use of drugs without the knowledge of how drugs are prescribed. DUS provide data on prescribing patterns and may help in improving prescribing habits of general medical practitioners. This study was designed to evaluate the prescribing pattern of Analgesics in a tertiary care teaching, to impart the basic rational therapeutic skills and to sensitize the undergraduate medical students about judicious use of medicines.

METHODS

The retrospective study was conducted by Pharmacology department in SGRRIM and HS. A total of 726 prescriptions were collected by 2nd professional MBBS students entering 5th semester and evaluated for prescribing pattern using WHO drug use indicators including analgesics prescribed per prescription, fixed dose combinations, drugs from the national list of essential medicine 2015, and drugs prescribed by brand names.

RESULTS

A total of 726 prescriptions were collected and analyzed. 470 (64.74%) were males and 256 (35.26%) were females. Majority of patients 242 (33.33%) were in the age group of 31-45 years followed by 139 (19.41%) in 16-30 years group (Table 1).

Table 1: Demographic profile.

Age (Years)	Number (%)
0-15	122 (16.80%)
16-30	139 (19.41%)
31-45	242 (33.33%)
46-60	113 (15.56%)
>60	110 (15.15%)

Table 2: Diseases pattern.

Diseases (726)	Number (%)
Respiratory Tract Infections	195 (26.85%)
Hepatitis	154 (21%)
Dengue Fever	122 (16.80%)
GUTIs	92 (12.67%)
Enteric fever	51 (7%)
PUO	37 (5%)
Cellulitis	30 (4.13%)
Miscellaneous	45 (6.19%)

The analgesics were prescribed in various diseases as 195 (26.85%) in respiratory tract infections, 154 (21%) in hepatitis, 122 (16.80%) in dengue fever, 92 (12.67%) in genitourinary tract infections, 51 (7%) in enteric fever, 37 (5%) in pyrexia of unknown origin, 30 (4.13%) in cellulitis and 45 (6.19%) in miscellaneous diseases (Table 2). 301 (69.20%) drugs were prescribed as oral formulations and 134 (30.80%) drugs were injectable. Most commonly prescribed analgesic were paracetamol 208 (47.81%), tramadol 66 (15.17%), aceclofenac 62 (14.2%), diclofenac 51 (11.72%), Ibuprofen 46 (10.57%) and buprenorphine 2 (0.45%) (Table 3).

Table 3: Analgesics prescribed.

Analgesics (435)	Number (%)
Paracetamol	208 (47.81%)
Tramadol	66 (15.17%)
Aceclofenac	62 (14.2%)
Diclofenac	51 (11.72%)
Ibuprofen	46 (10.57%)
Buprenorphine	2 (0.45%)

Other parameters as analgesics per prescription, number of fixed dose combinations (FDCs), and drugs from national essential medicine list were also assessed. 0.60 drugs prescribed per prescription. 108 (24.83%) were the fixed dose combinations; Drugs prescribed from national list of essential medicine 2015 were 381 (87.59%). Majority of the drugs 369 (84.83%) prescribed by brand names (Table 4).

Table 4: Other parameters assessed.

Parameters	Number (%)
Drug formulations (Oral:Injectable)	301 (69.20%):134 (30.80%)
Analgesics Per Prescription	0.60
Fixed dose combinations	108 (24.83%)
Drugs Prescribed By Brand Names	369 (84.83%)
Drugs from National list of essential medicine	381 (87.59%))

DISCUSSION

A total of 726 prescriptions were collected. 64.73% were males and 35.26% were females, which is in contrast to previous study where females were more commonly prescribed analgesics.[5] The most commonly analgesics were prescribed in the age group 31-45 years which is in relation to earlier study where most commonly prescribed age group was 30-40 years.[5] In the present study the analgesics were least commonly prescribed in >60 years age group patients which is in relation to previous study where the analgesics were least commonly prescribed in geriatric patients.[5]

In present study most commonly analgesics were prescribed for respiratory tract infections (26.85%) which

are comparable to study by Mohammed TCH et al where analgesics were commonly prescribed for viral fever (18.78%) and respiratory tract infections (15.15%).[5] Most commonly prescribed analgesic in our study was paracetamol which is in contrast to other earlier studies where diclofenac was prescribed commonly and then paracetamol was second commonly prescribed.[5,6] Concerning the analgesics, Paul AD et al and Seager JM et al have reported that ibuprofen was the most often prescribed analgesic which represents a deviation from our study.[7,8]

Moreover, generic drugs by allowing the reorganization of the products by its scientific names provides easier for the prescribers, dispenser and users to choose between many alternative competing in terms of quality, price or convenience. It has been founded that generic prescribing percentages were less in hospital compared to the brand name prescribing. 84.83% drugs were prescribed by a brand name which is in relation to previous study where 89.66% drugs were prescribed by brand names.[5] Average number of drugs per prescription is an important index of prescription audit. Mean number of drugs prescribed per prescription should be kept as low as possible to prevent the drug-drug interactions, unwanted effects and the additional cost. Analgesics prescribed per prescription was 0.60 which is in contrast to the previous study by Builders MI et al where 3.8 analgesics were prescribed per prescription.[9] 69.20% prescribed drugs were oral and 30.80% were injectable which is in comparison to previous study where one third of prescribed drugs were injectable.[5] In the present study the percentage of fixed dose combinations were 24.83% this finding was similar to another study.[5]

Use of drugs from the essential medicine list should be promoted for optimal use of limited financial resources, to have acceptable safety and to satisfy the health care needs of the majority of population.[10] In the present study 87.59% of the prescribed drugs were from the essential medicine list 2015. Drug utilization studies contribute to rational prescribing of the drugs. This understands how drugs are being used by making estimates of number of patients exposed to drugs, describing and estimating to what extent the drugs are used.[11,12] To summarize our findings, the 2nd professional students have collected prescriptions from indoor patients who were analyzed using WHO drug use indicators as drugs per prescription, drugs from the essential medicine list, prescription by generic versus brand names and fixed dose combinations.

Study limitation was that the adverse effects and drug-drug interactions and cost effectiveness was not analysed.

CONCLUSION

Since MBBS students are future prescribers thus the present study was an attempt to develop the clinical skills in rational prescribing. Such kind of drug utilization studies that help to make them learn about the rational use of drugs, prescribing patterns in a hospital.

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