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Clinical Case Follow Up Study: A Method of Teaching Clinical Pharmacology to the MBBS Students.

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ABSTRACT

To impart clinical pharmacology knowledge to the MBBS 2nd professional students and to improve the quality of students by giving adequate knowledge in rational prescribing. A total no of 150 cases were followed up by the undergraduate students during 2nd professional MBBS in the department of pharmacology at SGRRIM &HS, Dehradun from June 2012 to November 2012. Patients were analyzed on various parameters using WHO drug used indicators and National List of Essential Medicines. A total of 150 cases were evaluated .115(76.66%) were males and 35(23.34%) were females, majority patients 124(82.66%) were 16-45 years of age. Morbidity pattern was observed as infectious diseases 100 (66.66%) and non- infectious 50 (33.34%) respectively. Amongst infectious diseases, fever 40 (40%), acute gastroenteritis 27 (27%), tuberculosis 11(11%) and urinary tract infection 9 (9%) were most frequently observed, and non-infectious diseases were epilepsy 11(22%), hypertension 7(14%) and gastro-esophageal reflux disease 7(14%) respectively. A total of 491 drugs were prescribed, 433 (88.18%) were oral, 58(11.82%) injectable formulations were used.145 (96.66%) patients were prescribed more than one drug.29 FDCs were used. 3.45 drugs and 3.00 drugs per prescription were prescribed for infectious and non-infectious disease respectively. Antibiotics 189 (38.49%), NSAIDs 78 (15.88%), antiepileptics 19(3.86%) and antihypertensive 18(3.66%) were most commonly prescribed. Clinical case follow up study can be introduced as a tool for imparting knowledge of clinical pharmacology to undergraduate MBBS students.

INTRODUCTION

Undergraduate medical education needs ongoing improvements to meet the changing demands of medical practice in the 21st century [1]. The WHO sponsored survey on teaching clinical pharmacology in medical colleges in India has shown that there is a need to introduce clinical pharmacology at the undergraduate level in order to improve rational prescribing of medicines. The lifelong skills need to be inculcated at the beginning of clinical training, nurtured during internship and residency and sharpened during later years [2].The broad goal of teaching undergraduates clinical pharmacology is to impart the knowledge, skills and attitudes that a student should learn in order to prescribe drugs safely and effectively and to maintain this competence throughout his/her professional life (2).Clinical case follow up study is one such method of imparting clinical orientation to the MBBS students, which have a bearing on their further training during final professional and internship period. The importance is laid on pharmacotherapy, routes of administration, any adverse drug reactions, drug interactions, and important precautions to be followed with a specific agent [3].

In order to impart clinical pharmacology knowledge to the MBBS 2nd professional students and to improve quality of the students by having adequate knowledge in rational prescribing, a clinical case follow up study was conducted by the department of Pharmacology in the Hospital ward at SGRRIM&HS, Dehradun.

MATERIAL AND METHODS

A total of 150 cases were followed up by the undergraduate MBBS students (2nd professional duration) in the department of Pharmacology in the Hospital ward at SGRRIM&HS, Dehradun from June 2012 to November 2012. Patients were analyzed on various parameters using WHO Drug used indicators and National List of Essential Medicines.

RESULTS

A total of 150 cases were evaluated by MBBS 2nd year students. 115 patients were males (76.66%) and 35 patients were females (23.34%), 124 patients (82.66%) were in 16-45 years age group followed by 20(13.33%) patients in >45 years, 5(3.33%) patients in 5-15 years age group and 1(0.66%) patient in 0-5 year age group (table 1). Morbidity pattern was divided into infectious and non- infectious diseases with 100(66.66%) patients in infectious diseases and 50(33.34%) patients in non- infectious diseases (table 2).

Table 1: Gender & age distribution of patients

Gender/age distribution of patients		Number (%age) of patients
Total patients		150
Male : Female		115 (76.66%) : 35(23.34%)
Age(years)	0-5	1 (0.66%)
	6-15	5 (3.33%)
	16-45	124 (82.66%)
	>45	20 (13.33%)

Table 2: Morbidity pattern of diseases

Disease Category	Disease class/Type	No. of patients	%age of patients
Infectious diseases 100 (66.66%)	Fever	40	40
	Acute gastroenteritis	27	27
	Tuberculosis	11	11
	Urinary Tract Infection	9	9
	Others	13	13
Non-infectious diseases 50(33.34%)	Epilepsy	11	22
	Hypertension	7	14
	Gastroesophageal reflux disease	7	14
	Others	25	50

Infectious diseases patients were further subdivided into fever 40(40%), acute gastroenteritis 27(27%), tuberculosis 11(11%), urinary tract infection 9(9%) and others 13(13%). The fever patients included typhoid 20(50%), malaria 8(20%), viral fever 4(10%), Pyrexia of unknown origin (PUO) 3(7.5%), fever with urticaria 2(5%), Kala Azar 2 (5%) and pneumonia 1(2.5%). The patients in others category were tonsillitis, allergic rhinitis and helminthic infections(table 2).

Non infectious diseases were subdivided into epilepsy 11(22%), hypertension 7(14%), gastro-esophageal reflux disease 7(14%) and others 25(50%). The patients in others category included dental caries, diabetes mellitus, acne vulgaris, iron deficiency anemia, rheumatoid arthritis and acute cholecystitis (table 2).

A total of 491 drugs were prescribed to 150 patients. Out of 491 prescribed drugs, 433(88.18%) drugs were given orally and 58(11.82%) injectable formulations were used (figure 1).

Details of prescribed drugs

Out of 491 drugs, 189(38.48%) antibiotics were prescribed, 78(15.85%) NSAIDs were prescribed, 19(3.86%) antiepileptics, 18(3.66%) antihypertensives and 187(38.14%) other drugs were prescribed. 29(19.34%) Fixed dose combinations were used (figure 2). Amongst Antibiotics, Ciprofloxacin was the most commonly used antibiotic. Paracetamol was the most prevalent NSAID. Phenytoin Sodium was the most common antiepileptic and Enalapril being the most common antihypertensive. The other drugs category was mainly composed of Multivitamins, antacids, antiallergics, iron and folic acid preparations and corticosteroids.

The most common fixed dose combinations included amoxicillin and clavulanic acid, followed by sulfmethoxazole and trimethoprim.

Figure 1: Drug formulation used over the study period

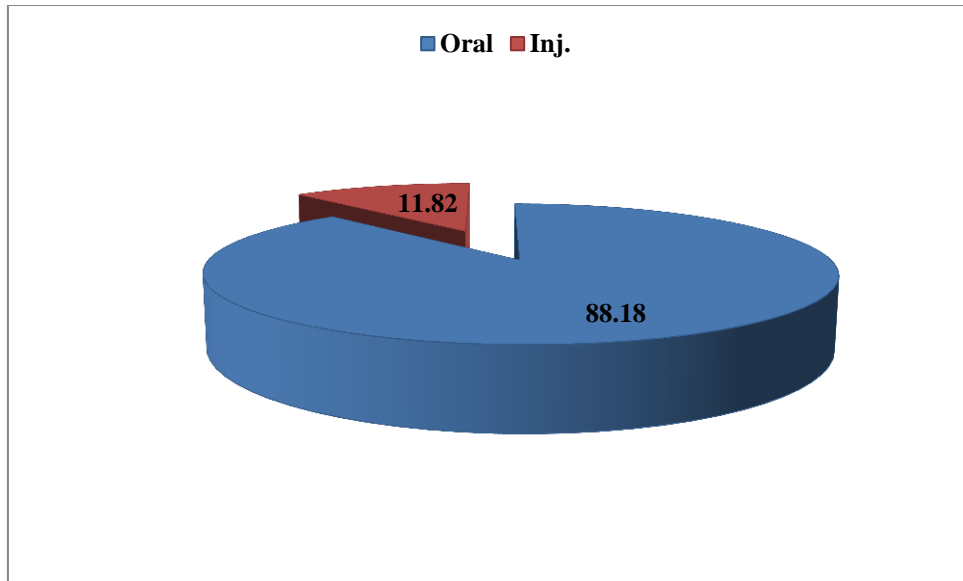
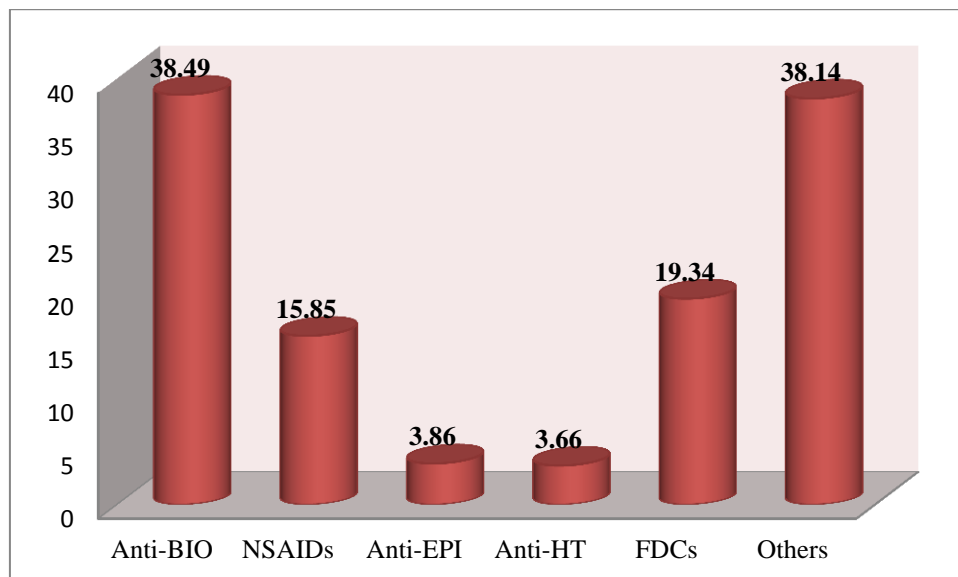


Figure 2: Details of drugs prescribed



Anti-Bio: Antibiotics, Anti-Epi: Antibiotics, Anti-HT: Antihypertensive

Patient wise distribution of drugs

Out of 150 patients, 68(45.33%) patients were prescribed > 3 drugs, 48 patients received 3(32%) drugs, 29(19.33%) patients received 2 drugs and only 5(3.33%) patients were prescribed 1 drug (Table 4). Overall 3.45 drugs were prescribed per prescription for infectious diseases and 3 drugs were prescribed per prescription for non-infectious diseases.

Total time spent for the patient by the doctor= 10 min approx. No adverse drug reactions or Drug Interactions were reported by the students as the duration of observation was short.

Drugs prescribed from Essential Medicine List

A total of 260 drugs were prescribed from the essential medicine list which included Ciprofloxacin 46(17.69%), Paracetamol 31(11.92%), Ofloxacin 23(8.84%), Azithromycin 16(6.15%), Ranitidine 15(5.76%), Miscellaneous drugs (Multivitamins, iron+folic acid) 14(5.38%), Cefixime 13(5%) Omeprazole 13(5%), Isoniazid+Rifampicin+Pyrazinamide+Ethambutol 11(4.23%), Chloroquine 8(3.07%), Ceftriaxone 7(2.69%), Sodium Valproate 7(2.69%) Erythromycin 5(1.92%), Amoxicillin+Clavulanate 5(1.92%), Aspirin 5(1.92%), Amikacin 4(1.53%),

Ceftazidime 4 (1.53%), Metronidazole 4(1.53%), Sulfmethoxazole+Trimethoprim 3(1.15%), Prednisolone 3(1.15%), Atenolol 3(1.15%), Amlodipine 3(1.15%), Clindamycin 2(0.76%), Hydrocortisone 2(0.76%), Enalapril 2(0.76%), Hydrochlorthiazide 2(0.76%), Furosemide 2(0.76%), Metformin 2(0.76%), Salbutamol 2(0.76%), Diazepam 2(0.76%), Levodopa+Carbidopa 1(0.38%). (table 3).

Table 3: Patient wise distribution of drugs

Number of drugs	1	2	3	>3
Infectious disease (number of patients)	Nil	20	39	41
Non-infectious disease (number of patients)	5	9	9	27

Table 4: Drugs Prescribed from Essential Medicine List

Name	Number / Percentage
Ciprofloxacin	46 (17.69%)
Paracetamol	31 (11.92%)
Ofloxacin	23 (8.84%)
Azithromycin	16 (6.15%)
Ranitidine	15 (5.76%)
Miscellaneous drugs(Multivitamins, iron+folic acid)	14 (5.38%)
Cefixime	13 (5%)
Omeprazole	13(5%)
Isoniazid+Rifampicin+Pyrazinamide+Ethambutol	11(4.23%)
Chloroquine	8(3.07%)
Ceftriaxone	7(2.69%)
Sodium Valproate	7(2.69%)
Erythromycin	5(1.92%)
Amoxicillin+Clavulanate	5(1.92%)
Aspirin	5(1.92%)
Amikacin	4 (1.53%)
Ceftazidime	4(1.53%)
Metronidazole	4(1.53%)
Sulfmethoxazole+Trimethoprim	3(1.15%)
Prednisolone	3(1.15%)
Atenolol	3(1.15%)
Amlodipine	3(1.15%)
Clindamycin	2(0.76%)
Hydrocortisone	2(0.76%)
Enalapril	2(0.76%)
Hydrochlorthiazide	2(0.76%)
Furosemide	2(0.76%)
Metformin	2(0.76%)
Salbutamol	2(0.76%)
Diazepam	2(0.76%)
Levodopa+Carbidopa	1(0.38%)

DISCUSSION

The present study was an attempt to develop clinical skills in MBBS 2nd professional students. In this study, students learnt about the demographic profile of patients i.e. number of male and female patients and prevalence of diseases according to age group, morbidity profile of diseases; infectious diseases and non- infectious diseases and the individual diseases included under each category. Stress was laid on pharmacotherapy and rational use of drugs as it has been explained in earlier studies [3]. Students were able to categorize the drugs as antibiotics, NSAIDs, antiepileptics, antihypertensives and other drugs. Thus they developed analytical skills and about the prescribing trends in the hospital. The importance of fixed dose combination was also imparted to them. The number of drugs prescribed per prescription was also specified i.e. 3.45 drugs in case of infectious diseases and 3 drugs in case of non- infectious diseases. Limitations of this clinical case follow up study were the inability on the part of students to report adverse drug reactions and various drug interactions.

The main purpose of undergraduate medical curriculum is to develop the requisite diagnostic and therapeutic skills of a basic doctor. The practical training has also to be need based and relevant [4]. Mere theoretical teaching is not enough. The students must be taught certain basic skills which form an integral component of practicing rational therapeutics [5]. Training of students through such clinical case follow up studies gives a clinical orientation to the MBBS students, which have a bearing on their further training in final professional and internship [3].

CONCLUSION

To conclude, clinical case follow up studies can be introduced as a method of training MBBS students in order to improve their knowledge and to develop intellectual skills so that they are able to prescribe drugs based on their suitability, tolerability and efficacy according to the need of the patient for prevention, diagnosis and treatment of various diseases.

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