Comparison of Rational Pharmacotherapy Approach by Medical Students with and without Guide to Good Prescribing Guidelines

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ABSTRACT

Background: Knowledge of pharmacology forms the basis of rational pharmacotherapy practice. Teaching the medical students about systematic application of pharmacology in patients' care forms an essential component. It facilitates the medical students to develop a methodical approach in solving patients' clinical problems.

Objective: To compare rational pharmacotherapy approach in management of essential hypertension and acute bronchial asthma by MBBS students before and after exposure to WHO GGP guidelines.

Materials and Methods: Sixth-term MBBS students, conventionally trained in management of essential hypertension and acute bronchial asthma and randomly divided into group A (n=36) and group B (n=42), were asked to make a treatment plan for a hypothetical case of essential hypertension and acute bronchial asthma respectively in an open unstructured format. Following an interactive teaching session on WHO GGP guidelines for each group separately, both groups were asked to remake the treatment plan for the same hypothetical case in an objective structured format based on GGP. The treatment plan written before and after exposure to GGP was compared based on various steps of GGP. Paired student's t test was used for analysis.

Results: The score enhancement with GGP (mean ± SD) in group A for defining the patient problem, setting up the therapeutic goal, selecting P drug, writing the prescription, providing the drug information, monitoring the drug treatment and updating drug information was 0.61±0.55, 0.53±0.51, 2.75±1.4, 9±1.24, 14.64±0.8, 6.08±1.59, and 3.39±1.02 respectively. The score enhancement (mean ± SD) in group B for the above mentioned steps was 0.85±0.36, 0.97±0.17, 1.73±1.57, 6.18±2.88, 6.21±1.47, 5.79±1.49 and 6.36±2.04 respectively. The score enhancement with GGP guidelines was statistically significant with p value 0.001 in both groups.

Conclusion: With widely rampant irrational prescribing behaviour in our country, the study showed statistically significant improvement in rational pharmacotherapy approach by medical students after exposure to GGP guidelines.

KEY WORDS: Rational Pharmacotherapy; GGP Guidelines

INTRODUCTION

Knowledge of pharmacology forms the basis of rational pharmacotherapy practice. Teaching the medical students about systematic application of pharmacology in patients' care forms an essential component. It facilitates the medical students to develop a methodical approach in solving patients' clinical problems. WHO Manual Guide to Good Prescribing provides step-by-step guidance to enhance skills necessary for the process of rational prescribing, with many illustrative examples.[1] With irrational prescribing and medication errors being widely common in our country, inclusion of principles of GGP in the practical pharmacology curriculum would enable the medical students in judicial application of pharmacology information in patient care.[2-4] The present study was done to compare treatment plan devised by second year medical students for hypothetical cases of essential hypertension and bronchial asthma before and after exposure to GGP guidelines.

MATERIALS AND METHODS

Sixth-term MBBS students were randomly divided into two groups—Group A (n=36) and Group B (n=42) and were asked to make a treatment plan for a hypothetical case of essential hypertension and acute bronchial asthma respectively in an open unstructured format. They were allowed to take the aid of any standard medical book to develop the treatment plan. Following an interactive teaching session on WHO-GGP guidelines for each group separately, both groups were again asked to make treatment plan for the same hypothetical cases in an objective structured format based on GGP. The treatment plan developed before and after exposure to GGP was compared based on various steps of GGP like defining the patient's problem, setting up the therapeutic goal, selection of P drug, writing the prescription, providing the drug information, monitoring the drug treatment, and updating the drug information. Different scores were given for the various steps of GGP followed. Paired student's t test was used to analysis the data. The mean score obtained by groups for each step before and after exposure to GGP guidelines were compared.

RESULTS

The score enhancement with GGP (mean ± SD) in group A with clinical problem of Essential hypertension for defining the patient problem, , selecting P drug, writing of prescription, providing drug information, monitoring the drug treatment and updating drug information was 0.61±0.55, 0.53±0.51, 2.75±1.4, 9±1.24, 14.64±0.8, 6.08±1.59, and 3.39±1.02 respectively. In Group B with the clinical problem of bronchial asthma the score enhancement (mean ± SD) of the following steps of defining the patient problem, setting therapeutic goal,, selecting P drug, writing the prescription, providing drug information, monitoring the drug treatment and updating drug information was 0.85±0.36, 0.97±0.17, 1.73±1.57, 6.18±2.88, 6.21±1.47, 5.79±1.49 and 6.36±2.04 respectively. The score enhancement after exposure to GGP guidelines was statistically highly significant in both groups.

Table-1: Comparison of Rational Pharmacotherapy for Essential Hypertension Written by Students before and after Exposure to GGP Guidelines

Steps of GGP guidelines	Mean score±SD		Score enhancement	P
	With GGP	**Without GGP**		
Defining patient problem	0.83±0.42	0.22±0.38	0.61±0.55	6.65*
Setting therapeutic goal	0.53±0.51	0	0.53±0.51	6.24*
Selecting of P drug	8.4±1.07	5.6±0.69	2.75±1.49	11.96*
Writing the prescription	10.2±1.15	1.22±0.59	9±1.24	42.86*
Providing drug information	15.56±0.84	0.92±0.28	14.64±0.8	112.62*
Monitoring treatment	6.25±1,61	0.17±0.38	6.08±1.59	22.94*
Updating drug information	3.39±1.02	0	3.39±1.02	19.94*
* Highly significant at 0.1% level				

Table-2: Comparison of Rational Pharmacotherapy for Bronchial Asthma Written by Students before and after Exposure to GGP Guidelines

Steps of GGP guidelines	Mean score±SD		Score enhancement	P
	With GGP	Without GGP		
Defining patient problem	0.85±0.36	0	0.85±0.36	13.55*
Setting therapeutic goal	1±0	0.03±017	0.97±0.17	32.75*
Selecting of P drug	4.64±0.82	2.91±1.31	1.73±1.57	6.32*
Writing the prescription	6.18±2.88	0	6.18±2.88	12.32*
Providing drug information	6.45±1.35	0.24±0.94	6.21±1.47	24.25*
Monitoring treatment	5.79±1.49	0	5.79±1.49	22.3*
Updating drug information	6.36±2.04	0	6.36±2.04	17.9*
* Highly significant at 0.1% level				

DISCUSSION

The methodical application of pharmacology knowledge and skill by medical students is important for the upcoming work as clinicians. Facilitating the medical students to develop a disciplined approach towards drug prescribing enables them for rational prescription.

Defining the patient's problem (the diagnosis) is the fundamental step for initiating any treatment plan. Clearly defined patients problem is an essential element that leads to appropriate health care. With the aid of GGP guidelines there was a statistically significant improvement in scoring (Table 1 & 2) as it creates an awareness of initiating the treatment plan with the adequate defining of patient problem.

The next step after diagnosis is to set up the therapeutic goal. This step creates a focus for appropriate drug selection(s) suited to individual patient problem. The therapeutic goals were maintaining the blood pressure <135–140 mmHg for systolic and <80–85 mmHg for diastolic in case of essential hypertension. And relief of an acute episode of bronchial asthma and preventing the future attacks were clearly stated by the medical students after exposure to GGP guidelines (Table 1 & 2). Though the second year medical students have knowledge of drug selection, the systematic application of the knowledge in patient care is not emphasised as the scoring for setting up the therapeutic goal was nil before the exposure to GGP guidelines. It improved after exposure to GGP guidelines (Table 1 & 2).

Selection of the preferred drug involves integrating the pharmacology knowledge with practical prescribing. The concept of choosing the P(ersonal) drug from the list of drugs available for the disease should be familiar for the prescriber. It makes the students to select drug by referring to pharmacology textbooks, national formulary and available national and international guidelines for the treatment for the disease and how to use them in practical patient context. After exposure to GGP guidelines, the scoring for selection of preferred drug with GGP guidelines was statistically improved. With GGP guidelines the awareness of the concept of (P) preferred drug selection based on criteria's like efficacy, safety, cost, convenience, suitability, contraindications, interactions, high risk groups was created. so the students will be able to critically analyze all the available information and use it to select their own P-drugs in the current situation of pharmaceutical industry literatures influencing drug selection.[5]

Prescription writing is a vital part in patient care and also can have medicolegal repercussion. The importance of writing proper prescription should be emphasized during the medical course to inculcate appropriate prescribing skill. With GGP guidelines, the prescription writing improved and students were made aware of the components of prescription writing. With widely rampant error of prescription[2-4], including the GGP guidelines to teach prescription writing for the medical students enables them to be safe prescribers.

Providing drug information to the patient forms a very important aspect of patient care.[6] It helps

in active participation of patient in health care, avoids medication error, improves patient compliance, and helps in detecting adverse effects and leading to an overall increase in patient health literacy. It also stresses importance of communication between doctor and patients. The medical students' awareness that it is necessary to provide drug information to the patient improved with exposure to GGP guidelines. It also improved overall communication skills.

Monitoring the drug treatment is essential to know the efficacy of the drug, improvement in disease or if not to change the selection of drug or the dose or even the disease diagnosis made. Imbibing the medical students about the importance of monitoring the treatment improved with GGP guidelines. With Updating the drug information with literature by the doctors is essential to keep on par with the currently available advanced treatment of any disease, scoring improved with GGP guidelines.[7]

CONCLUSION

With the exposure to GGP guidelines, the collective approach involving knowledge and skill towards patient care improved, and it prepares the medical students for their transition towards practical patient care. It can also improve quality and safety of health care.

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