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PROBLEMS WITH DRUG PRESCRIPTION; IMPACT OF EDUCATIONAL INTERVENTION.

Pharmacology

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ABSTRACT

AIM & OBJECTIVE: To study the prescribing patterns and impact of educational intervention on the prescribers

MATERIAL &METHODS: On approval of the Institutional Ethics Committee, Prescribing doctors (Assistant professors, Associate Professors & Professors) were included in the study as participants. They were subjected to the study in two phases that included a pre-test evaluation, followed by educational intervention and post- test evaluation in both phases of the study.

In the first phase the participants were educated on essential medicines, rational use of medicines, appropriateness and Pharmacoepidemiology, while the second educational session emphasized on use of Branded Vs Generic Medicines, Fixed Dose Combinations and Adverse Drug Reactions. Further the data obtained was subjected to statistical analysis.

OBSERVATIONS & RESULTS: In phase – I of the study, on pre lecture evaluation, the mean score of participants (30), was 6.07±1.86, which was found to be significantly ($p < 0.0001$), increased by 40% (8.47±1.17).

Similarly in phase –II the significant ($p< 0.0001$) rise was found by 86% with post-test evaluation.

CONCLUSION: The study indicates that a regular training program is essential to periodically update the prescribers, dispensers, public and the patients on meticulous use of medicines to prevent the drug related problems

KEYWORDS

Educational intervention, Essential Medicines, Fixed dose Combinations, Rational use of Medicines, Adverse drug reactions, Prescribing patterns.

INTRODUCTION:

In India there are more than 70000 formulations flooding into the market, with presently only 433 preparations listed in the essential medicine list as per the 20th edition published in 2017. This increases the competition among the Pharmaceutical companies, to suggest attractive brand names that encourage the practicing doctors to prescribe the medicines in their brand names.

Unfortunately, there are several preparations that Look Alike & Sound Alike (LASA). Such preparations are more likely to create a problem at the time of dispensing. Although, branding and brand names benefit the companies' such practice of drug prescribing results in irrational use of Medicines or use of irrational Fixed Dose Combinations (FDCs). [1, 2] Along with this in India currently, the issue of counterfeit drugs and spurious drugs are adding to the problems in the use of Medicines.[3] Busy life style of the doctors , lack of the updated knowledge also contribute to the irrational prescription of medicines.[4]

The practice of self-medication, with more than 300000, Over the Counter (OTC) preparations available in the market make the individuals to switch from prescription to OTC preparations for many reasons, again contributing to the occurrence of drug related problems like drug interactions, adverse drug reactions and drug resistance. [5]

The practice of irrational use of medicines, use of irrational FDCs, inappropriate use of medicines, practice of polypharmacy, practice of branded prescriptions, self-medication, lack of standard treatment guidelines & prescribing policies, all of these contribute to several serious public health problems across the world related to the use of medicines, such as; drug interactions, adverse drug reactions, drug resistance, poor patient compliance and increase cost of health care management.

The WHO estimate shows that 50% of the prescribed/dispended medications are inappropriate/ irrational, while 50% of them are not taken correctly by the patients (poor patient compliance). This forces the need for educating the prescribers, dispensers, the public and the patients regarding the meticulous use of medicines.

Hence, the study has been taken up; **i.** To evaluate the prescription patterns among the doctors in the rural health care set up **ii.** An educational intervention to the doctors pertaining to essential medicine, Rational use of Medicines, Appropriateness of drug used, Pharmacoepidemiology, Branded Vs Generic preparations , Fixed Dose Combinations and adverse drug reactions, **iii**. To evaluate the existing knowledge about the above mentioned parameters and compare it with their updated knowledge with the use of pre and post test questionnaires. Further, **iv.** To emphasize their importance on practice of rational use of medications.

MATERIALAND METHODS:

Following approval of the Institutional Ethics Committee, the cross sectional study was conducted at Dhiraj Hospital, of Sumandeep Vidyapeeth, Vadodara. After explaining the purpose & nature of the study the participants (doctors - Assistant Professor, Associate Professor & Professors) from various clinical department willing to fill the written informed consent form were included in the study.

The study was conducted in two phases.

Phase I: All the participants (30) were given a structured pre-questionnaire to evaluate their knowledge, attitude and practice about; the essential medicines, rational use of medicines, appropriateness and Pharmacoepidemiology pertaining to the use of medicines.

After the pre-test, they were given with a lecture of one hour to address the topics mentioned above, which was followed by the post test.

Phase II: After a week gap the same participants of which four had dropped out (26) were given with a structured pre-questionnaire to evaluate the knowledge, attitude and practice about; use of Branded Vs Generic Medicines, Fixed Dose Combinations and Adverse Drug Reactions.

After the pretest once again a lecture session of one hour to address the topic was given to the participants followed by the post test.

Further, at the end of the two phases of the study the pre- test and post-test questionnaires were subjected for data analysis, using Microsoft excel 2010, and statistical analysis was performed using the paired 't' test, considering the value of $p<0.05$ to be statistically significant.

OBSERVATIONS & RESULTS:

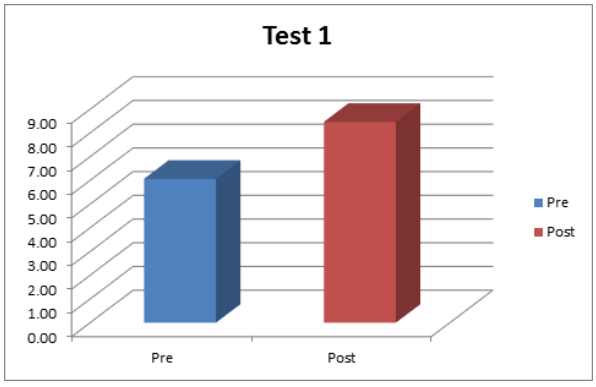
On analyzing the data obtained from the studies we observed that, in Phase - I pre lecture, the mean score of all the participant was 6.07±1.86 whereas, post lecture the mean score was significantly increased by 40% and i.e. 8.47±1.17 with $p < 0.0001$ as indicated in table no 1 and Fig no 1.

Table 1: Indicates the knowledge attitude and practice; on Essential medicine, Rational use of Medicine, Appropriateness and Pharmacoepidemiology

Phase - 1	N(30)	Mean Exam Score	SD	SEM	p value
Pre test	30	6.07	1.86	0.34	**0.0001*** **
Post test	30	8.47	1.17	0.21	

***** p < 0.0001, indicating statistically significant difference in their knowledge following the educational intervention.**

Figure no 1: Indicates the Knowledge, Attitude & Practice; on Essential Medicine, Rational use of Medicine, Appropriateness and Pharmacoepidemiology.



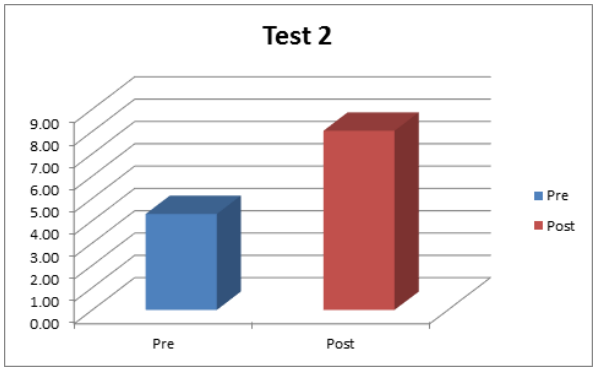
In Phase –II the same group of participants were involved of which we had four drop outs (n=26). In this phase it was found that, in pre lecture the mean score of all participants was 4.30±1.78 whereas, post lectures the mean score significantly increased by 86% and i.e. 8.03±0.99 with p < 0.0001, as indicated in Table no 2 and Fig no 2.

Table 2: Indicates the Knowledge, Attitude & Practice; on Branded vs. Generic, Fix Dose Combinations and Adverse Drug Reactions

Test 2	N (26)	Mean	SD	SEM	p value
Pretest	26	4.30	1.78	0.34	**0.0001*** **
Posttest	26	8.03	0.99	0.19	

***** p < 0.0001, indicating statistically significant difference in their knowledge following the educational intervention.**

Graph 2: Indicates the knowledge, attitude & Practice; on Use of Branded vs. Generic, Fix Dose Combination and Adverse Drug Reactions



DISCUSSION:

It has been observed that as per the WHO estimate 50 % of medications either prescribed or dispensed are irrational, which includes the fixed dose combinations also, while, the remaining 50 % of the medications are wrongly taken by the patients indicating poor patient compliance. The authors, based on their observations find that, it is essential & prudent for periodical training of every doctor practicing in the community either as an individual or as a part of a functional hospital.

It was observed that despite of emphasizing the use of essential medicines, prescription of generic medicines and use of rational medicines, appropriate use of medicines during the course of II MBBS, as also focused in every text book of Pharmacology, we found that there was no importance carried by the doctors against these issues while prescribing the medicines to their patients. [6, 7] These observations of ours are similar to Alfa & Adigwe [8]

It was realized with our data analysis that knowledge, attitude & practice against essential medicines, rational use of medicines, fixed dose combination, appropriateness of drug use , use of branded Vs generic medicines, Pharmacoepidemiology & adverse drug reactions was poor among the participants & was found to be improved after the lecture sessions on the topic which was statistically significant ($p<0.0001$) . These observations of ours resemble to the observations of Ambwani S & Mathur A.K. [2006] [9] It has also has been observed that most of the preparations prescribed to the patient are by their brand names thus contributing to the irrational medications which are similar to the observations made by Alfa & Adigwe [8]

Although, several studies had been conducted by many researchers such as Vagge et al,[10] Tesfaye et al [11], Bajaite et al [12] to evaluate the knowledge pertaining the rational use of medicines among the Fresh Medical Graduate, we could not find such studies conducted on the practicing doctors who carried long teaching experiences too.

In our study, which included the participants- doctors at the level of Assistant Professor, Associate Professor and Professor, we could observe that their awareness on the issues pertaining to use of medicines were faded, thus indicating the essentiality of periodic training of the Prescribers, Dispensers, Public and patients as well to avoid any of the drug related problems.

CONCLUSIONS:

The drug interactions, Adverse drug reactions, Drug resistance etc., are the expected problems following the irrational use of Medicines, use of irrational Fixed Dose Combinations, inappropriate use of Medicines , not prescribing the essential or generic medicine etc.

Hence, it is the need of hour to see that the doctors as prescribers, dispensers, the public and the patients themselves are updated periodically to emphasize on meticulous use of Medicines.

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