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VIEW POINT

Practical Assessment In Pharmacology At A New Nepalese Medical School

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Students graduating from medical schools are not adequately trained to use the knowledge about drugs and treatments to make rational prescribing decisions. [1] Problem-based training in Pharmacology in undergraduate medical and paramedical education has been recommended as a key intervention to improve medicine use in developing countries. [2]

Traditional teaching in Pharmacology is characterized by the passive transfer and the memorizing of information about drug classes and individual compounds.[3] Teaching Pharmacology to the medical students differs from teaching it to the science students, because medical students have to learn not only about the mechanism of action of the drugs, but also the details and the practical use of many therapeutic compounds.[4] Problem-based practical training in Pharmacology in small groups, emphasizing the principles of rational prescribing and teaching students to use essential medicines rationally, is gaining ground in developing nations.

In Nepal, a developing country in South Asia, Pharmacology is taught during the first two years of the undergraduate medical

(MBBS) curriculum in an integrated manner with other basic science subjects. KIST Medical College is a new medical school in the Lalitpur district of the Kathmandu valley. The Department of Clinical Pharmacology is committed to teaching students to use essential medicines rationally. Students learn about essential medicines, analyze prescriptions and prescribing behaviour, select personal (P) drugs for common diseases, treat individual patients by using the selected P-drug/s, write prescriptions, communicate with simulated patients, critically analyze drug advertisements and promotional material and learn about the impartial, objective sources of the information on medicines. [5]

The type of assessment determines the type of learning behaviour which is adopted by the students.[6] The students learn to quickly identify and adopt learning behaviour/s which lead/s to high marks in the examinations. In developing countries, a large number of students are assessed every day during practical examinations. Viva-voce is also conducted along with the practical exams. The exam should reflect and assess the topics taught and the skills acquired during the practical sessions, it

should be completed within a reasonable time frame (less than six hours) and it should be conducted by using the resources which are available in the developing countries. Student performance during practical sessions throughout the year should also be considered in the practical assessment.

The authors describe in this manuscript, how they designed and carried out a practical assessment in pharmacology which concentrated on the key skills which were identified by the department, like the selection of medicines based on objective criteria, their rational use in patients, counseling patients about drug and non-drug measures, analyzing promotional material, dealing with pharmaceutical promotion and analyzing medicine use, among others. The authors' experience shows that it is possible to conduct practical assessment testing prescribing skills and rational use of medicines in a resource limited setting in a developing country. Also, the manuscript, along with the one which was previously published [5], will be useful to pharmacology educators in developing countries to plan, design and assess practical sessions in pharmacology.

Facilitators carried out the formative assessment of students during small group Pharmacology practical sessions. The attendance during the sessions, punctuality, involvement in group activities, attitude, presentation of group work and contribution to the sessions, were the different criteria assessed. Students were graded as A, B and C for each criteria and overall, with A being good, B being satisfactory and C being poor. Depending on their formative assessment, weights are given and were multiplied with the marks obtained by the students during their internal practical assessments. Practical records gave important information about the student's performance in the sessions. Regularity of the submission, neatness, making changes according to the facilitator's comments, completeness and creativity were the different criteria noted.

The practical assessment should be in accordance with the course objectives and key prescribing and other skills should be assessed as they are intended to be inculcated. At the same time, it should be objective and unbiased and should be finished within a reasonable time frame. These were the challenges that we had to keep in mind. Table 1 shows the various exercises which were carried out with the time allotted and the marks distribution.

The batch of 25 students was divided into two subgroups. One subgroup went first for P-drug selection and the other went for different practical exercises. P-drug selection for common diseases and treating a particular patient by using the selected P-drug was an important exercise. Since our objective was to test student understanding, the ability to use impartial sources of information and to make rational decisions, the students were allowed to use textbooks, formularies and other sources. The step of counseling the patient was done separately as an Objective Structured Practical Examination (OSPE) station.

In another room, students were made to rotate through a set of eleven OSPE stations. A station tested their ability to answer a small query about a medicine by using information resource/s on the computer. The students identified the learning objectives from a particular patient scenario which dealt with the social issues in the use of medicines, selected and justified various subcategories of essential medicines (like medicines used in diarrhoea, vomiting and skin conditions) for primary health centers in Nepal and also carried out simple pharmaceutical calculations. Students commented on the paper and pencil scenarios of doctors and pharmaceutical promotion. 'Choosing medicines for common diseases with reasons' were tested at other stations. At the communication (counseling) skills station, the examinee was assessed by using a structured checklist. A simulated patient was used and the definition of the disease/condition, non-

pharmacological measures, obtaining a drug history, choosing a medicine/s, informing the patient how to use it, explaining important adverse effects, encouraging questions and checking patient understanding were assessed. The students spent three minutes at each station and the OSPE with rest spots was completed in about 40 minutes.

Then, students did the exercise of the critical analysis of the drug advertisement/promotional materials according to the ethical criteria for medicinal drug promotion (<http://archives.who.int/tbs/promo/whozip08e.pdf>). Students also verified the correctness of the claims which were made in the advertisements. The students also either checked the rationality of a given prescription or answered a brief clinical problem which was related to therapeutics. After an hour, the two groups were interchanged.

(Table/Fig 1) Exercises during the Pharmacology practical assessment with mark distribution and time allocation

Exercise	Marks	Time allotted
Selecting a P- drug	10	60 mins
Treating an individual patient		
a. Verifying suitability of selected P-drug for the patient	5	
b. Writing the prescription	5	
Spotters (ten in number)	10	40 mins
Communication (counseling) skills (one)	5	
Rest spots (2)		
Analysis of drug advertisement/promotional material (one)	5	20 mins
Clinical problem/Rationality of prescriptions (one)	5	
Practical record (Both first and second year)	5	
Viva-voce on P-drug selection (5 minutes per student)	Marks allotted for P-drug selection during viva-voce	60 mins.

The student's P-drug selection skills were assessed during a structured viva-voce session (5 minutes duration). The various steps mentioned in 'Guide to good prescribing'

(<http://apps.who.int/medicinedocs/pdf/whozip23e/whozip23e.pdf>) were assessed by using a checklist. Marks were allotted for different steps, like defining the diagnosis, specifying therapeutic objectives, giving weights for efficacy, safety, cost and suitability and the P-drug selection process.

A similar checklist was used for other steps of the process. The informal student feedback has been positive. We plan to further develop and improve on the assessment system in the future.

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