Formulating a curriculum in clinical pharmacology for medical undergraduate students in India

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Introduction

The curriculum in pharmacology for medical undergraduates received a much needed fillip when the Medical Council of India (MCI), in 1997, spelt out the objectives of the course which were need based, relevant and contemporary.[1] Many medical universities and medical colleges took this opportunity to draft syllabi which incorporated the spirit of the curriculum. However, the broad based nature of the document precluded some of the colleges from bringing about the necessary changes. This left a wide disparity in the pharmacology syllabi followed by medical colleges throughout India.

Dr. Hardayal Singh conducted a survey for the World Health Organization (WHO) and the Indian Council of Medical Research (ICMR) which concluded that clinical pharmacology was not being taught in many medical colleges, both government aided and private. Using this report as a starting point, the WHO and the ICMR gathered experts from all over the country to draw up a road map for introducing clinical pharmacology as an essential part of the pharmacology curriculum. Numerous workshops, symposia, brain storming sessions were held over the years in which a large number of teachers participated, expressed their views and concerns and pledged whole heartedly to support a curriculum in clinical pharmacology if and when it was incorporated into the present pharmacology curriculum. Hence, it became clear that there was a need for a document which was comprehensive enough to force all colleges to change. It had to be a document reflecting the views and concerns of those pharmacologists who are presently involved in teaching pharmacology to undergraduates throughout India. It became increasingly apparent that the process had to be undertaken by a small group, given some shape and then commented upon by as many pharmacologists as possible before the final document was prepared.

However, a comprehensive base document which had been vetted by the consumers, the teachers, was lacking even though this need had been voiced in various forums for many years. The question on everybody's mind which was not openly asked was "who would prepare such a document?" It was also realized that simply preparing a curriculum would not be enough. It was imperative that the Medical Council of India (MCI) should agree, at least in principle, to incorporate it into the revised curriculum which is expected to be out in 2007. Therefore, it was decided that unless the MCI was involved in the process from the very beginning, the chances of it being incorporated into the final document would be slim. Only a person with close ties with the MCI could give the appropriate inside information needed to prepare the base document.

There is a mismatch between the objectives stated in the 1997 document[1] and the requirements[2] which were published in 1999. Evidently, the requirements had not kept pace with the objectives of the curriculum and it was a nightmare for colleges to procure all the items on the list before the MCI inspection since some of the equipment were not being manufactured any more.[3] Therefore, the document needed to look beyond the curriculum, and give the minimum requirements as well, so that there would be no disparity and the equipment and supplies which would be listed were only those needed to meet the objectives.

For a document to be considered for incorporation into the curriculum by the MCI, it had to be forwarded by a professional body of subject experts. The Indian Pharmacological Society (IPS), agreed to host a symposium on "Clinical pharmacology curriculum for medical undergraduates" during the 39th Annual Conference of the IPS at Jaipur in December 2006 which would be the platform where the final document could be endorsed. With the WHO-SEARO agreeing to sponsor such an event, a team of experts readily agreed to work on the draft and present the curriculum to their peers at Jaipur.

The making of the curriculum

The preparation of the draft document took into account the time frame available, as per the present recommendations,[1] the varied numbers of students in medical colleges, the staff strength required as per MCI norms[2] and the changes in the teaching of Pharmacology around the world. Drawing from a wide variety of resources such as the clinical pharmacology curriculum of the British Pharmacological Society,[4] the core curriculum described in the consensus statement for medical schools in the United States of America[5] and the MCI documents,[1, 2] a rough draft was prepared. Using a modified Delphi technique somewhat resembling the Delphi method used for the preparation of the curriculum for the British Society of Clinical Pharmacology,[6] the draft document was circulated to a small group of identified pharmacologists who are actively teaching the subject to medical students. Each member gave their comments which were circulated by email and changes were made to the draft. After 3 rounds, the

curriculum was posted to three focus groups, Indpharm, Gen X Pharm and NETRUM, e-groups consisting mainly of pharmacologists in India. Thus, the draft curriculum reached more than one thousand pharmacologists in India, some of whom volunteered their comments. Incorporating new ideas, deleting those parts which were not found acceptable to some, the curriculum underwent a further four revisions. After a process which took 6 weeks the last date for comments was announced, the discussion window closed and the document was printed.

This document was circulated to the audience at the WHO sponsored symposium on "Clinical pharmacology curriculum for medical undergraduates" held at Jaipur during the 39th Annual Conference of the IPS on 22nd December 2006. This permitted delegates and the consumers to have a face to face dialogue with the core group. Some of the participants who had not given comments by email voiced their concerns on certain aspects of the curriculum. These were debated and some of the changes were accepted to be incorporated. This final version carries the ideas, thoughts, experiences and collective wisdom of more than a thousand people who so generously gave their time and expertise with the aim of pruning and perfecting a curriculum in clinical pharmacology for the medical undergraduates which we can truly feel proud of.

What did not change

The expert from the MCI asked us not to change a few core aspects, stating that changing these core aspects may jeopardize the chance of the curriculum being accepted by the MCI since these issues were central to many subjects.

1. Timing and duration of the course: Though many Pharmacologists were concerned that the 3rd, 4th and 5th semesters are too early in the course to learn clinical pharmacology, the timing was not changed, since the number of subjects during the later part of the course is more and may overburden the students. Hence an option to have modular teaching in the 8th and 9th semesters has been made. The total duration of 300 hours has not been changed.
2. No. of staff required for teaching the course, their qualifications.
3. Percentage weightage for internal assessment remains at 20%.
4. Evaluation – using theory, practical and orals.

What was added

1. Lectures in clinical pharmacology and practicals in clinical pharmacology are spelt out.
2. A Computer Assisted Learning (CAL) Laboratory with computers, internet connectivity.
3. Latest audio visual aids for the lecture theatres.
4. Demonstration rooms to conduct small group discussion.

What was deleted

1. All animal experiments.
2. All dispensing pharmacy practicals.
3. Many instruments which featured in the list of equipment[2]
4. The museum

In preparing this curriculum a rough estimate of the time which can be spent for each topic has been given.

Advantages of the curriculum

1. This curriculum does not require any major inputs in teaching style, faculty training and number, timing or equipment and therefore can be easily adopted by any department.
2. It closely resembles the previous curriculum[1] in form and therefore has good chances of succeeding.
3. Objectives are clearly defined and belong to all three domains.
4. The Teaching-Learning (T-L) methods can be selected to fulfill objectives by individual department.
5. Clinical pharmacology practicals have been introduced in the place of dispensing pharmacy practicals and animal experimentation. The clinical pharmacology practicals listed do not expect students to observe experiments but rather focuses on basic skills (such as loading a syringe or starting an intravenous drip) and knowledge required for doctor. For e.g. the practical on therapeutic drug monitoring (TDM) seeks to introduce the student to TDM, how to fill a form for TDM, how to interpret the values, which samples (timing) to take for the drug and so on. There is no need for students to do an HPLC estimation or even watch it if the college does not have this facility. If possible, individual departments may show a video of HPLC/RIA or arrange for a visit to a TDM lab if facilities are available.
6. One of the problems many colleges were facing were the unreasonable demands in terms of equipment made to the institutions. All the unnecessary equipment have been removed. (list given)

Criticisms

1. There is no radical change in teaching methodology. It is more of slight changes, changes in focus and so on.
2. There is no change in the timing of teaching clinical pharmacology.
3. Even though the curriculum is called "clinical pharmacology" this is what was being previously taught. So why a change in nomenclature?

Focusing on the process, not the product

A change in the teaching style from traditional lecture based method to problem based learning cannot be done for a single subject. Hence this curriculum tries to make small changes within the existing framework. The nomenclature is important to ensure that the focus during teaching will shift to the applied aspects rather than the basic aspects of pharmacology. With the large amount of drugs available in the market, teachers will be able to focus on those aspects of pharmacology which would empower doctors of tomorrow to use drugs rationally. It is hoped that with time, this curriculum will assist teachers to teach undergraduate medical students how to choose an appropriate drug rather than teach them which drug is given for a particular condition. We must develop methods to

encourage students to get used to the decision making process and reward this process rather than award marks to those who get only the final answer correct without understanding the process. The challenge lies in encouraging students to become life-long learners, to look for unbiased sources of information and to use the tools which promote rational therapy such as standard treatment guidelines. This is perhaps the greatest challenge confronting teachers of pharmacology at present.

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