Editorial

Strategies to improve student learning of pharmacology in pharmacy curriculum

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Introduction

Pharmacology and Toxicology provide the core knowledge for mechanisms of drug action and toxicity to pharmacy students.[1] As such, a good foundation in these elemental courses is necessary to the understanding of the therapeutics courses. This seems all the more important, given the fact that students are expected to solve case based scenarios for the North American Pharmacist Licensure Examination (NAPLEX).[2] The pharmacy education literature has suggested several strategies on improving student learning and retention of pharmacology in the curriculum. The following are a synopsis of some of the strategies documented by researchers that have shown improvement of student comprehension of complex pharmacological principles.

Use of primers

It is a known fact that pharmacy school curriculum[1] entails the delivery of large amount of information, in a pretty short period of time (2-3years of didactic). Professors have to constantly balance the need to provide the most necessary information within the time constraints of the course. One of the strategies mentioned in the literature is the use of Primers to allow freshly admitted P1 students to brush up on their pre-pharmacy knowledge. The primers typically consist of material that will be applicable in the first year of didactic education. The material provided ranges from medical terminology,[3] fundamentals in organic chemistry (functional groups), principles of calculations, and other idiomatic material unique to the pharmacy program. While anecdotal evidence exists highlighting the benefits of such primers, there is not much by way of statistical evidence.

Integrating the curriculum

Beleh et al.[4] have summarized the reasons and advantages of integrating the biomedical and pharmaceutical sciences. The predominant advantage lies in better understanding of the concepts and retention by students. Pharmacology and medicinal chemistry are two such courses that lend it well in terms of integrating the information. Moreover, the information in these two areas is the precursors for the therapeutic courses for pharmacy students. Thus it seems logical to integrate these courses and if possible, run them concurrently with the therapeutic courses. This integration is often done by body systems to provide continuity and a reference point for students.

Use of online tools, strategies, and games to improve retention

Student engagement and interest are often the necessary attributes to successful learning of the material. While most courses attempt to engage students, it is a difficult task given the complexity of the material and time available. In a study by Karaksha et al.[5] it was found that providing online teaching and learning resources effectively increased student engagement. In a similar study, an educational board game was found to increase student learning of the autonomic nervous system pharmacology.[6] Other strategies include using NIH grant applications, case based instruction, crossword puzzles, 3-D virtual environment, and online active learning modules.[7–11]

While the process of learning is very intrinsic and unique to an individual, the research certainly bears out the advantages of employing strategies that can enhance the learning process for students.

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Conflict of interest

Author declares that there is no conflict of interest.

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