

ABSTRACTS



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14. Pharmacology Education and Technology

14.001 Use of board game for studying clinical cases in pharmacology. Silva DG, Bacchi AD – UEL – Ciências Fisiológicas

Introduction: Games can offer stimulus and an appropriate environment to the spontaneous development of students. The student, while playing, develops initiative, reasoning, memory, attention and interest, managing to concentrate for a long time in the same activity. It is therefore possible to use playful actions to facilitate the students' understanding. Pharmacology is traditionally taught in a formal expository way. In this context, innovative resources, such as games, can be valuable to the teaching-learning process. **Methods:** The activity consists in using a board game, developed in digital format with Microsoft PowerPoint software and projected through datashow. Students are presented with a "problem situation", based on a real context, involving the death or hospitalization of an individual. The board represents a city with places like: hospital, pharmacy, laboratory, school, etc. Each group of approximately 5 students is represented by a single color circle which moves in turns using a dice, choosing which places to visit. Each location contains a hidden clue (in a card format) with information that tells more about the victim's behavior, laboratory results, information on drugs used or useless leads. As they collect clues, they try to fill in the "criminal report" with the cause of death. To do this, they should use the obtained clues in combination with the pharmacological information acquired in theoretical classes, books and the internet. The first group to solve the case, wins the game. **Results:** We used as an example the case of a 2 year old child with 13kg, found dead 2 days after an adenotonsillectomy surgery. As they investigate the locals, the students discover, for example: - Pharmacy: codeine (12.5mg) and paracetamol (120mg) had been prescribed every 6 hours. - Hospital: the cause of death was hypoxia due to respiratory arrest. - University: the prescribed dose was within the correct values for the child's weight and age. - Laboratory: in the blood morphine was found (32ng/mL), and that maximum amount tolerated by a child would be 20ng/mL. Genotyping revealed duplication in the CYP2D6 allele. The other locations contained less relevant information. In this way, the groups should try to justify what happened. Thus, after about 1 hour playing, some groups should be able to conclude that, although the dose of codeine was correct, duplication in the CYP 2D6 allele in the child makes him an ultra-rapid metabolizer, converting more codeine in morphine and leading to death by respiratory arrest. The case was based on the medical report presented by Ciszkowski et al., 2009. **Conclusion:** Uniting elements of games to Pharmacology teaching makes the educational activity very attractive to students. It promotes increased motivation, interest in the discipline, as well as improvement in interpersonal communication and logical reasoning. In addition, the presented educational resource is accessible to any university, as it is only required datashow, 6-sided dices and paper cards with tips. The teacher can adapt any contents to this model, and it is not necessary to restrict the activity to the exemplified case. REFERENCES: Ciszkowski C et al. Codeine, Ultrarapid-Metabolism Genotype, and Postoperative Death. [Letter to the Editor]. N Engl J Med; v.8 p.827. 2009. **Financial Support:** this work was financed with the authors' own resources.

14.002 Historical aspects of pharmacology according to bibliographic reference of pharmacy School Pharmacy Museum (MPh/UFOP) Santos WP¹, Grabe-Guimarães A², Borges I³ ¹UFOP – Acadêmico, ²UFOP – Farmácia, ³UFOP – Museologia

Introduction: The study and teaching of pharmacology and toxicology have changed considerably since they were consolidated as science and discipline in the late 19th century. Bibliographic Collection of Pharmacy Museum of Pharmacy School (MPh/UFOP) includes rare books and historical collections from all areas of Pharmacy - biology, chemistry, physics, pharmacology, toxicology and medicine. The purpose of this work was to provide a glance at the evolution of pharmacology in agreement with the collection of UFOP's Pharmacy Museum. **Methods:** Among several exceptional books containing topics concerning the study and teaching of Pharmacology and Toxicology in the 19th and in the beginning of the 20th century, we perused the content of 'Curso de Pharmacologia' (1st and 2nd editions, 1911 and 1926, respectively), written by Professor Jovelino Mineiro. It is a compendium of pharmacology lessons of the time - preparation, purification, identification of impurities and falsifications - taught by him at the Ouro Preto School of Pharmacy when in charge of this discipline. There were studies about the most commonly used drugs then, such as mineral compounds, salts and organic acids, alkaloids and glycosides, used as medicines. Professor Jovelino Mineiro was former director of Hygiene Laboratory of Minas Gerais State, director of Ouro Preto School of Pharmacy and an emeritus Brazilian pharmacist and professor of pharmacology (1889 – 1930). Subsequently the analysis, we compared gathered data with the edition of present-day pharmacology textbook 'Farmacologia', from Penildon Silva (8th edition, 2010), regarding the teaching approaches and medicines used, paying close attention on the evolution of the concept of pharmacology itself. **Results:** Topics encompassed by the concept of pharmacology have drastically changed during the 20th century. Preparation, purification and identification of drugs and pharmaceutical supplies, as extensively described in Jovelino's compendium and there are no longer within the scope of modern pharmacology. Quality Control and Pharmaceutics are the modern responsible areas for dealing with these concerns, independently of pharmacology. According to Penildon Silva, present-day pharmacology can be divided into different branches, the most commonly known being Pharmacodynamics, Pharmacokinetics, Pharmacognosy, and Toxicology. The mechanism of action of drugs (Pharmacodynamics) was not of great importance at the beginning of the 20th century and was barely addressed in 'Curso de Pharmacologia', either because of the lack of knowledge at the time or the lack of awareness of its implications on therapeutic efficacy and safety. Drugs derived from plants and natural sources are now studied within the scope of Pharmacognosy. The study of motion and behavior of drugs in living organisms, Pharmacokinetics, only became a solid section of pharmacology in the 70s. **Conclusion:** Not only breakthrough drugs have been discovered, but also the whole perception of pharmacology evolved throughout the 20th century. The emphasis given on drug and pharmaceutical supplies preparation has switched to the patient as a living organism. Topics related to patient safety became a major preoccupation, and drug side effects are now compulsorily depicted on pharmacology textbooks. Founding agencies and acknowledgments: FAPEMIG (Universal 2015), UFOP, FEOP, CAPES.