Abstracts of the
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P 20.30
Effect of a neuroprotective drug, dipiridamole on cardiac repolarisation: importance of the delayed repolarisation reserve in the proarrhythmic risk

Results: In normal condition, dipiridamole (1 μM) produced a moderate decrease in the duration of the action potential (AP) (9.2 ± 0.38 μs at cycle length of 2000 ms, n = 9). This effect was augmented in preparations where Ito was previously blocked by 10 μM (5.7 ± 0.9 μs at cycle length of 2000 ms, n = 8). When dipiridamole (1 μM) was administered to these preparations, it induced a marked further lengthening relative to the AP duration measured after the administration of BAPTA (10.5 ± 0.9 μs at cycle length of 2000 ms, n = 8). In isolated rabbit hearts, dipiridamole (1 μM) produced a significant QT prolongation (12.7 ± 0.9 μs, n = 9). After the administration of the "repolarisation reserve" by the Iκ channel blocker (3 μM), the effect of dipiridamole on QT prolongation was greatly diminished (28.5 ± 7.9 μs, n = 7). This result suggests that dipiridamole might be able to induce a proarrhythmic effect in clinical conditions, particularly in patients with pathological repolarisation reserve, leading to cardiac repolarisation instability.

P 21.01
Evaluation of problem-based learning by students of Pharmacology at the Veterinary Faculty of the University of Saragossa (Spain)

Problem-based learning (PBL) is a teaching method that, over the past few years, has been widely used in medical studies. In the Pharmacy Department of the Veterinary Faculty of the University of Saragossa (Spain), PBL has been introduced for the first time, and a student evaluation of this method has been carried out. At the beginning of the academic year a typical case was dealt with in the veterinary unit of a 2-month-old dog with a temperature and lymphadenopathy. Students had to look for vaccination and internal anthelmintic schedule, the symptomatic treatment for high temperature and evaluate the use of antibiotics, clustering one of them, if necessary. After this, they were asked to respond to a scenario that is anonymous questionnaires on the interest, usefulness and difficulty of PBL compared with other learning activities (lectures, laboratory practice (LP) and seminars). The role of tutors was also evaluated. In general, the information and the degree of integration in the context of Pharmacology and importance of previous knowledge of the topic was discussed.

P 21.02
EURACA - supporting nonsmall models in pharmacology teaching

Animals are still being used in practical classes in pharmacology, physiology, laboratory animal sciences, anatomy and physiology. These classes are particularly useful when learning practical skills are part of the objectives. However, undergraduates labs are also used for teaching factual knowledge, and skills such as data handling, experimental design and communication. They have some disadvantages, they are resource intensive, and do not suit all students. The majority of such models are computer-based learning (CBL) simulations but, also, interactive video, postmaterial postmaterial and in vivo methods are also used. Usually, they are less expensive and several studies have demonstrated that knowledge gain is equivalent to animal classes and many of the skills can be effectively taught. Many CBL programs include features which make them suitable for study independent of tutor support e.g. built-in on-screen support, self-assessment. Furthermore, all of these models instead of tablets, a contribution to the reduction of unnecessary animal use. There are many large number of models available particularly to support pharmacology teaching. The choice of which model to use depends on the objectives of the course, which will be discussed at the seminar, and general on-line learning resources. The benefit of each class that is why the EURACA database (http://www.euraca.org) which offers extensive information on high-quality peer-reviewed articles. In an effort to increase awareness, we will give a demonstration of several models and provides advice to teachers at national and international meetings.

P 21.03
Evaluation of pharmacological skills of medical students via prescription assessment
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The aim of our study was to evaluate the prescription writing skills of the students via prescription audit (PA) sessions as part of problem-based pharmacotherapy (PBT) training program. We observed the possible improvement of their prescription habits.

Method: At the beginning of the academic year, PA was started. School of Medicine at the University of Cologne was asked to write a prescription for a case with the diagnosis of uncomplicated acute bacterial sinusitis. Prescriptions are scored in terms of format and rationality with a 4-grade scale (0-3). At the end of the 1st week of the course, the students were asked to write a prescription for a similar case and were analysed by the same method. The students were also asked to answer a questionnaire that covers their demographic properties and their opinion about the PA method. Eighty-nine students were included in this study during the first 3 months of the 2003-2004 academic year. The students were included in the study, to assess how their prescription habits had changed with the course.

Results: The direct evaluation via PA demonstrated that their after-course prescriptions were far better than the precourse ones concerning format of the scripts and rationality of the drugs chosen (P = 0.05). The after-course questionnaire revealed the satisfaction of the students about the program and demonstrated that they gained self-confidence regarding their prescribing skills. The majority of the students stated that they have learned prescribing skills and that internal condition, moderately knowledge cardiac repolarisation by inhibition of Iκ. However, after the attenuation of the normal "repolarisation reserve", this drug can induce marked QT interval prolongation, which may result in proarrhythmic action.

P 21.04
Problem-based learning: the road ahead for Pharmacology
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Pharmacology is a challenging subject that medical students often struggle to get to grips with; whilst it lends itself well to small group contextual learning methods like problem-based learning (PBL) this has not yet translated into terms of learning outcomes. We have recently used a novel 'clustered PBL' approach to promote integration of pharmacological knowledge. Feedback from this exercise demonstrated clear interest and engagement with small and large groups of students. The aim of this study is to follow a small group of medical students at Imperial College London throughout their training to determine their experience of, and interest in, PBL and whether this can be correlated with longer term performance both in the formal and informal learning environments. The prior educational experience and perceptions of a group of 44 students was assessed at the beginning and at the end of the first term during which they utilised PBL to investigate the doctor-patient relationship. Assessments were questionnaire based using a 5-point Likert scale. Data indicates that students had experienced mainly traditional teacher-led approaches (mean 4.4 ± 0.9) rather than group project work (mean 2.7 ± 0.5) with the exception of a small number of students almost exclusively from one non-examining state school. This may be the result either of a more 'traditional' teaching style which features presenters for PBL or the more limited resources in this sector may foster students into more self-directed learning situations. Most students enjoyed PBL (mean 4.1 ± 0.7) rating it higher than both lectures (mean 2.6 ± 1.6) and tutorials (mean 3.9 ± 1.1) if student enthusiasm for PBL can be correlated with effectiveness then perhaps we should reconsider our approach to teaching pharmacology and utilize these techniques to a greater extent.

P 21.05
Teaching social pharmacology to medical students: a 10-year experience

Nowadays the need to take into consideration the social aspect of medicines is imperative in various sociocultural sectors, such as political situations, health systems, unemployment, state disrepair, religion, etc. could affect the efficacy of a medical treatment or even alter a medical decision; thus the need to introduce medical students to these aspects. Drugs undoubtedly constitute a main therapeutic tool; but the course of Pharmacology usually focuses on purely scientific information. Taking as an example the psychiatric drugs, medical students learn everything on drug mechanism of action on various tissues, quite evidently on side-effects without although classified them by severity or frequency and almost nothing about the problems arising from their unjustified abuse as a consequence of inappropriate prescription. In view of these problems in the Medical School of Athens, about 10 years ago, we created a new elective course "The Social Pharmacology" which gives very good criticisms by the students. The aim of this course was to introduce students to the social aspects of the drug use. Some of the topics of this course are: drug misuse and abuse; drug abuse in the elderly and medical controversies such as drugs: Drugs and driving; Drug dependence: Alcohol dependence; Alcohol and driving; Dating. Drug prescription and ethnic disparities. Drug prescription in blind: Compliance: Unconscions bias etc. In part pheonomic: The role of drug industries etc. Social pharmacology tries to correct pharmacological knowledge to life and not to illness.