2010 EuroMeeting Student Poster Abstracts

The following are the accepted Student Poster Session Abstracts as of the press date of this issue. The student posters will be on display at the DIA 22nd Annual EuroMeeting, March 8–10, Grimaldi Forum, Monaco. The poster review committee will select the winning posters on Tuesday, March 9 at 5:30 PM in the Exhibition Hall. The winning authors will receive a EuroMeeting Student Poster prize.

Placebo Effect in Children

Miss Vinciane Cabot
Eudipharm, Lyon, France

Objective
Placebo effect seems more important in children than adults as suggested in partial epilepsy and in migraine trials. Consequently, establishing efficacy of drug interventions might be more challenging in children.

Method
We reviewed all placebo controlled systematic reviews enrolling both children and adults published in the Cochrane database. No limit on the type of disease or drug intervention was used.

Results
From a total of 972 systematic reviews, 53 met our inclusion criteria. We compared treatment versus placebo effect in adult versus children using Meta-regression technique.

Conclusion
It might be necessary to increase the size of future pediatric trials to ensure enough power.

Protective Effects of Pioglitazone in the Model of Adriamycin-Induced Nephropathy

Miss Hana Cernecka
Comenius University, Bratislava, Slovakia

Objective
We studied the effects of pioglitazone in experimental model of adriamycin nephropathy.

Method
After induction of endothelial dysfunction and nephropathy using adriamycin (2.5 mg/kg i.v.), rats were treated with pioglitazone. Vascular function, renal tissue damage and changes in proteinuria were assessed.

Results
Adriamycin reduced aortic relaxation and caused massive proteinuria and renal damage. Pioglitazone normalized endothelial function, decreased proteinuria and reduced structural renal damage.

Conclusion
Pioglitazone reduced adriamycin induced endothelial and renal dysfunction in rat.

Decision Analysis of Three Rate-Control Agents in the Treatment of Atrial Fibrillation in Elderly or Sedentary Patients

Ms. Theresa Doan
Research Assistant, University of Houston College of Pharmacy, Houston, Texas

Objective
Conduct cost-minimization analysis among three recommended drugs (digoxin, diltiazem, and metoprolol) for rate control for patients with atrial fibrillation (AF) from a third-party payer's perspective.

Method
A decision model to calculate total cost per day was developed using values from national statistics, payer reimbursement rates, and published studies.

Results
Metoprolol was the least expensive drug ($319/day) compared to diltiazem ($481/day) and digoxin ($605/day). Metoprolol resulted in a net cost savings of $162 and $286 per patient compared to diltiazem and digoxin, respectively.

Conclusion
For elderly or sedentary patients with AF, metoprolol seems to be cost-effective as initial therapy. Further evaluation is needed to consider long-term outcomes and costs between the drugs.

How to Deal With Regression to the Mean (RTM) in Clinical Trials?

Miss Marion Drouet
Eudipharm, Lyon, France

Objective
To estimate the impact of RTM on clinical trial results. To propose procedures in the conduct of clinical trials to decrease this impact.

Method
In silico simulations applied to a population with a "true" value of systolic blood pressure.

Results
Multiplying the number of selection measures reduces the impact of RTM: five measures reduce the effect by 3 fold compare to a single measure. Separating baseline measures from selection measures also allows a reduction of the RTM effect by about 50%.

Conclusion
In silico modeling illustrates how simple methods in trial design can significantly reduce the consequences of RTM on the estimation of the treatment effect.

New Approach on the Development of an Anti-VEGF Drug Delivery System

Mr. João Eduardo Duarte
Student, Faculty of Pharmacy, University of Lisbon, Leiria, Portugal

Objective
These studies have been designed to develop a non-invasive topical application system of lipid nanoparticles for ocular administration of an anti-VEGF protein, namely Bevacizumab, in the treatment of Diabetic Retinopathy.

Method
This formulation of lipid nanoparticles was prepared according to a melting homogenization process, with Compritol and Precirol used as lipids and Bevacizumab used as an anti-VEGF protein. Bevacizumab was adsorbed to the lipid nanoparticle surface and particle assays were performed afterwards.

Results
Lipid nanoparticles containing adsorbed Bevacizumab presented a satisfactory overall profile according to the measured parameters such as viscosity of the formulation, average particle diameter, polidispersity index, electrophoretic profile and release profile.

Conclusion
The overall results show that this lipid nanoparticle formulation is capable of vehiculating an anti-VEGF protein like Bevacizumab, with an acceptable release profile and particle proprieties, being a promising alternative for ophthalmological use of this drug in patients with Diabetic Retinopathy.

Biopharmaceutics Drug Disposition Classification System (BDDCS) and the Role of P-gp in Intestinal Transport of Class 1 Drug Verapamil

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Objective
BDDCS predicts intestinal transporters effects to be insignificant following oral dosing for highly soluble and permeable/metabolized (Class 1) drugs. Here we investigate P-gp effect in the "in vitro" rat intestinal permeability (Papp) of Class 1 drug verapamil.

Method
Verapamil (10 μM) was added to either apical (A) or basolateral (B) sides of rat jejuno segments mounted in an Ussing chamber, in the presence or absence of the P-gp inhibitor GG918. Samples from A and B sides were collected over time and digoxin was used as a positive control for P-gp activity.

Results
Verapamil A-B Papp approached B-A Papp, net secretion (B-A Papp/A-B Papp) of 1.6. GG918 addition did not change verapamil permeability (net secretion = 1.3), while for nor-verapamil net secretion decreased from 7.8 (without the inhibitor) to 3.3.

Conclusion
These results show that although P-gp effect is not significant in verapamil transport in the intestine, efflux transporters may be relevant in intestinal transport of Class 1 drugs metabolites.

Drug Information Research Centre

Mrs. Camelia Denise Farah
UMF Cluj-Napoca, Cluj Napoca, Romania

Objective
The purpose of the paper was to evaluate the activities of the only Drug Information Research Centre (DIRC) in Romania, after 5 years of activity.

Method
It has been analyzed and quantified the information activity, by generating statistic information from the inquiries database, as well as other projects and programs.

Results
A number of 943 inquiries from health care professionals were received and answered at DIRC, 3 educational projects were developed, a research project on pharmacovigilance which is still in

progress, and round tables on various topics were organized.

Conclusion
DIRC is a valuable tool in information and research activities in Romania.

Nose-to-Brain Delivery of 1-(Beta-D-Ribofuranosil)-1,2,4-Triazole-3-Carboxamide (Ribavirin, RBV) for the Treatment of Viral Encephalitis

Miss Viola Galligioni
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Objective
RBV is active in vitro against flaviviruses responsible for encephalitis. In vivo, the efficacy towards the cerebral viral load can be limited by blood-brain interfaces that hinder cerebral distribution of RBV. In this study we assessed the CNS distribution of RBV after intranasal administration.

Method
10 µl of 100 mg/ml RBV aqueous solution were administered intranasally to SD rats. At 10, 20, 30 minutes after administration animals were sacrificed. CSF, cerebellum, olfactory bulb, cortex, basal ganglia, hippocampus were collected to quantify RBV by liquid chromatography tandem mass spectrometry.

Results
RBV was detected in all compartments 20 min after the treatment. Our results suggest a rapid extracellular flow through the nasal epithelium, possibly along olfactory nerve to olfactory bulb and brain stem with subsequent diffusion to other CNS areas.

Conclusion
The intranasal route shows many advantages clinically: non-invasiveness, ease of application, avoidance of hepatic first-pass metabolism. RBV nasal administration enhanced its availability in CNS showing that nose-to-brain antiviral drug delivery can be a possible way to treat viral encephalitis.

Optimization of Powder Compaction: A Challenge for Industrial Manufacturing Science

Mr. Nicolas D. Gentis
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Objective
The compression behaviour of different formulations has been studied in this project; sticking behaviour, resulting compression force and tensile strength were the main parameters evaluated for tablets compressed to specific relative densities.

Method
Tablets were prepared with powder mixtures of Paracetamol/Microcrystalline Cellulose (MCC) and Mefenamic acid/MCC using a Zwick material tester 1478 with flat faced round punches of 11 mm diameter and a powder weight of 300 mg. Tablet Tester 8M was used for tensile strength measurement.

Results
In process-record of the following parameters: Resulting compaction force, ejection force, tensile strength, compactibility, compressibility. Increasing drug load lead to: Linear decrease of resulting compaction force, logarithmical decrease of tensile strength and significant change of sticking behavior.

Conclusion
The proportional change of some parameters in dependence to the drug load of the investigated powder formulations and the sticking behavior by changing the drug load needs to be investigated with additional powder formulations and may open new avenues for an optimization of the compaction process.

Simulation Study to Investigate the Statistical Efficiency of Various Heart Rate Correction Methods for the QT Interval

Miss Christina Kossow
PhD student, Universität Ulm, Ulm, Germany

Objective
Since efficient determination of heart rate correction of the QT interval can reduce the cost of clinical QT trials, we investigated the bias and variability of various correction methods based on real data sets from 10 clinical trials.

Method
From each entire data set we re-sampled data sets with a reduced number of data points per subject. We then applied various heart rate correction methods to the re-sampled data sets and compared the resulting estimates of QT prolongation to the corresponding estimates from the original data set.

Results
Multilevel population heart rate correction using "subject" as a random intercept term is statistically most efficient. Modelling additional levels (eg, study period or gender) might further improve estimates from the reduced data sets.

Conclusion
Appropriate statistical modelling of the relation-

ship between QT and heart rate reduces the amount of data required for heart rate correction, and so helps decrease the cost of clinical QT trials.

Synthesis and Pharmacological Characterization of New Rationally Designed Ligands, With Specific Affinity for the Kainic Acid Receptors (KAR)

Ms. Julie Lynderup Rasmussen
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Objective
Neuro medicinal chemistry in the glutamate area. Glutamate is one of the most dominant neurotransmitters in the human brain, and is involved in cognitive functions as memory and learning. My aim is to synthesize new ionotropic glutamate receptor ligands—specific for the kainate receptor subtypes.

Method
Chemistry: protection of the starting compound followed by olefination will enable conjugated addition of substituent. Organo cuprate chemistry, hydroboration, oxidation and deprotection are the chosen mechanisms for preparing the ligands. Testing: binding assays using native rat cortical neurons.

Results
So far two ligands have been synthesized by the described pathway, with minor corrections. The ligands are diastereomers and was separated using chromatography in one of the last steps. Testing of the racemate will be done as well as at the pure diastereomers, to analyze the effect of each ligand.

Conclusion
Synthesis of the ligands suceeded in acceptable yields. Optimization should be done if upscaling is relevant. The test results will show whether further improvement of the ligands are necessary or if they are specific enough to be used as scientific tools in exploring brain function and malfunction.

Medical Device, Cell or Medicinal Product: Regulation of Cell Containing Therapeutic Products

Mr. Marko Olavi Närhi
Research Scientist, Helsinki University of Technology, Espoo, Finland

Objective
Determine how cell containing therapeutic products (CCTP) are regulated in EU and identify factors affecting their regulatory status.

Method
The study was conducted by analyzing community legislation regarding the regulation of therapeutic products.

Results
CCTPs containing animal cells are either medical devices or medicinal products depending on the viability of the cells. CCTPs containing non-engineered human cells are regulated as cells except mature blood cells which are blood products. CCTPs containing engineered cells are medicinal products.

Conclusion
The main factors affecting the regulatory status of CCTPs in regard to the cells are origin, viability and degree of manipulation. Although the line between cells and medicinal products is clearly defined, there will be borderline cases whose status has to be evaluated individually.

Capturing the Value of Information in Pharmaceutical R&D

Mr. Niyazi Oztoprak
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Objective
Making better informed decisions through the use of information gained in a development phase of one drug when making investment decisions on a related drug.

Method
We make use of statistical methods to estimate the correlation between the technical success characteristics of two drug candidates. A simulation is run with this information to demonstrate the effect of correlation on information spill over and optimal sequencing of projects.

Results
Higher correlation translates into higher value due to more information gained about the related project. Value is added either through the elimination of unnecessary costs or the inclusion of formerly low valued projects. Further, different correlation levels indicate different sequencing decisions.

Conclusion
Drug candidates with related molecular structures have interrelated technical success characteristics. The candidate selection process and optimal sequencing of selected drug candidates in an R&D portfolio should take information spill over into account.

The Burden of Ankylosing Spondylitis in the Czech Republic: Pharmacoeconomic Analysis

Alena Petrikova
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Objective
The objective of our analysis was to investigate the burden of ankylosing spondylitis (AS) in the Czech Republic as a baseline for future health economic evaluations as there are no published cost-of-illness data available in the Czech Republic or in Central or Eastern Europe.

Method
The data were obtained from two cross-sectional studies Beda I (2005) and Beda II (2008), performed in 1008 and 509 patients, respectively. Methodology used was the Cost-of-Illness analysis (COI) bottom-up approach performed from payers and societal perspective (including indirect costs).

Results
The average direct costs per patient in the sample per year are estimated at €1812 (Beda I) and €2588 (Beda II) with the average indirect costs €2218 (Beda I) and €2782 (Beda II). The largest direct cost burdens were spa procedures (45.3%, Beda I) and biological drugs (52.8%, Beda II).

Conclusion
Historically first analysis of the burden of the AS in the Central-Eastern Europe presents health care resource and cost consumption. It shows the need of further research in order to connect the health status with the costs consumption to perform more profound analysis.

The Impact of Orphan Drugs Regulations Worldwide on the Development and the Accessibility of These Drugs

Laurie Rague
Paris X1 University Faculty of Pharmacy, France

Industrial medicinal products are not always available for the treatment of rare diseases. Since the United States opened the way in 1983, several legislations on orphan drugs have been implemented worldwide to stimulate their development. 25 years on, time has come to evaluate the impact of these regulations, based on the statistics published by the competent authorities. Beyond the figures, a study on the accessibility of orphan drugs in Europe was led by patients associations.

Results
The results show that although the development of orphan drugs has significantly increased over the past decades, large inequalities remain between countries.

Cultural Determinants Affect Implementation of Good Clinical Practice (GCP) in Research in Malawi, Africa

Miss Joann J. Schmidt
Student, Eastern Michigan University, Howell, Michigan

Objective
Because clinical research conduct and GCP implementation are influenced by local culture, this study examines the experiences of 26 clinical research personnel in Malawi, to define relevant issues, gather solutions, and give voice to local investigators.

Method
Qualitative, semi-structured interviews were conducted, audio-recorded, transcribed and analyzed.

Results
Six themes, related to cultural determinants, emerged: community decision-making, illiteracy, patient identification, local myths, prevalence of poverty and sickness and social hierarchy.

Conclusion
Findings revealed that a "one-size-fits-all approach" to GCP does not work, that local investigators are best at identifying local solutions and that further operational research and increased communication are needed to gain and disseminate insights.

Paediatric Investigation Plans in Vaccine Development

Miss Aurélie Tireford
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Objective
Paediatric Investigation Plans (PIPs) are required by the Regulation (EC) 1901/2006 for new products. Here is an evaluation of the Paediatric Committee decisions on PIPs for vaccines since this regulation was implemented.

Method
All the data (measures and timelines proposed for PIPs, waivers or deferrals) were collected on the EMEA website.

Results
From December 2007 to October 2009, 12 vaccines have received an EMEA decision on a PIP, including deferrals, waivers or modifications. A PIP was refused for one vaccine; waivers and deferrals were commonly granted.

Conclusion
Safety is a fundamental aspect assessed by PIPs for vaccines aimed at a healthy paediatric population.

Therapeutic Safety Monitoring and Quality of Life in Paediatric Patients With Epilepsy

Mr. Lubomir Virag
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Objective

Our study explored adverse effects (AEs) of antiepileptic drugs (AEDs) and its impact on quality of life (QOL) in Slovak paediatric outpatients.

Method

AEs were investigated in patients (n = 293), who were stable on 1–2 AEDs for at least 3 months, using their medical records. Patients completed the QOLIE-AD-48 questionnaire.

Results

Overall, 32.8% patients reported = 1 AE. The most serious AEs were pancreatitis, rash, visual field loss and gingival hyperplasia. More severe AEs were inversely related to QOL ($p < .05$).

Conclusion

Our findings highlight the need to screen and evaluate adverse effects of AEDs which correlates with the QOL in the paediatric population.

Room for Improvements in Conducting and Reporting Non-inferiority Randomized Controlled Trials on Drugs

Miss Grace Wangge
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Objective

To identify how non-inferiority (NI) trials are conducted and reported.

Method

Review of 232 NI trials reported in PUBMED until February 2009.

Results

NI margins were reported in 97.8% trials, but only 45.7% trials reported the method to determine it. Only 98 (42.1%) used both ITT & PP analysis. A third (34.1%) of the trials did not use blinding. No difference was seen in the quality of reporting before and after the 2006 CONSORT statement extension.

Conclusion

Improvement in reporting is needed. The value of ITT analysis and blinding in NI trials should be further investigated.

Information to Patients: Educational Perspectives

Miss Louise Winnecke Jensen
Student, EPSA Vice President of Education, European Pharmaceutical Students' Association, Denmark

Objective

In 2009 European Pharmaceutical Students' Association (EPSA) conducted a survey uncovering issues within pharmaceutical education related to Information to Patients.

Method

The analysis of the online questionnaire, answered by 2740 students of pharmacy from 38 European countries, provides suggestions on how to improve the curriculum in order to better meet the demands of the pharmaceutical world of today.

Results

Among many interesting results is the fact that students in earlier years of study feel more confident than more experienced students, that they will be able to provide patients with adequate information about their medicines.

Conclusion

Issues in the pharmaceutical education have been uncovered, and should be addressed by coordinators of the pharmaceutical curriculum.