The Institute for Physical and Chemical Medicine and the USC Laboratory of Applied Pharmacokinetics present a Workshop on

Clinical Approaches to Individualizing Therapy with Toxic Drugs: Problem Cases and Methods for Solving them.

Wednesday and Thursday, April 21-22, 2004

Location: The Institute for Physical and Chemical Medicine, Moscow, Russia

This course is for physicians and pharmacists who are interested in optimal individualization of therapy with potentially toxic drugs, those which usually need therapeutic drug monitoring. Day 1 will introduce and review Basic PK/PD tools, building blocks, and concepts of pharmacokinetic modeling, and will emphasize their application to optimal patient care. Day 2 will continue with detailed analyses of clinical cases and specific methods used in their understanding and management. Note: if you would like to bring your own laptop computer to obtain and learn the relevant software (not included in the registration fee), you are encouraged to do so.

Preliminary Program

Faculty:

Irina Bondareva, Ph.D., Course organizer, Institute of Physical and Chemical Medicine, Moscow
Roger Jelliffe, M.D., Professor of Medicine, Laboratory of Applied Pharmacokinetics, USC School of Medicine, Los Angeles, USA

For registration and more information, contact:

Irina Bondareva, Ph.D.
Institute for Physical and Chemical Medicine, Moscow, Russia.
Email = ibondareva@mtu-net.ru
Phone = 7-095-104-1206

Wednesday, April 21, 2004 – Concepts, Building Blocks, and Tools

8:30 AM – Registration
9:00 AM – Welcome – Dr. Irina Bondareva
9:15 AM - Review of Basic Pharmacokinetic Concepts – Dr. Bondareva
Nonparametric Pharmacokinetic Population Models
9:45 AM - The Nonparametric Bayesian scenario and feedback strategy – Dr. Bondareva
10:00 AM - *Estimation of Creatinine Clearance* without a urine specimen in acutely ill, unstable patients – Dr. Jelliffe

**10:15 AM – Break**

10:30 AM - *When to obtain serum data* for Therapeutic Drug Monitoring – Dr. Jelliffe
  - Not just the trough
  - Capture the dynamics
  - Some optimal strategies

11:15 AM - *Modeling the assay error* – Dr. Bondareva

11:45 AM - *Nonparametric population modeling approaches* – Dr. Jelliffe
  - What is the ideal population model?
  - What “nonparametric” means here
  - The NPAG approach
  - Using the assay error and stated ranges

12:00 noon - *Using population modeling approaches optimally*
  - Get the assay error polynomial
  - Then use NPAG, get the entire joint density, essentially resolving the population into up to one model (support point) for each subject studied.

**12:30 PM – Lunch**

2:00 PM - *Introduction to multiple model (MM) dosage design* – Dr. Jelliffe
  - Software for MM dosage regimens

3:00 PM - *Getting MM Bayesian posterior joint densities* – Dr. Jelliffe
  - MM Bayesian posteriors
  - A new method – IMM – for detecting changing parameter values in patients

**3:30 PM – Break**

3:45 PM - *Modeling Drug Diffusion into Endocardial Vegetations* – Dr. Jelliffe

4:15 PM – “*Concentration and Time – Dependent Drugs*”: Modeling Organism Growth and Kill by Antibiotics – Dr. Jelliffe

**5:00 PM – Adjourn**

**Thursday, April 22, 2004 – Analysis and Management of Clinical Cases and Problems**

9:00 AM – Review and Discussion - Dr. Bondareva

9:15 AM – *How to Plan, Monitor, and Adjust Individualized Drug Dosage Regimens for Patients.*
  - Set a target goal for each patient according to the need for the drug.
  - Aminoglycosides 10 and 1, or 20 and 0.5
Vancomycin trough 10
Digoxin – really a 2 compartment model
  Clinical effect correlates better with tissue than serum concentrations
  How to manage this problem clinically
  Serum troughs usually 0.9 ng/ml
  Peripheral peaks usually 7.0 ug/kg
  Patients with atrial fibrillation need more
Antiepileptic Drugs: set specific target goals.
  Carbamazepine is 3-12 mg/l;
  Valproate - 50 - 100 (150) mg/l;
  Phenytoin - 3 - 20 mg/l;
  Phenobarbital - 10 - 30 mg/l.

10:30 AM - Case studies in aminoglycoside therapy
  Therapeutic drug monitoring
  Making the individualized, Bayesian posterior, model
  Planning the initial regimen
  A Gentamicin patient with changing renal function
  A Gentamicin patient on dialysis
  A problem patient on Tobramycin

12:30 PM – Lunch

2:00 PM - Cost-effectiveness of individualized therapy – Dr. Jelliffe
  Aminoglycosides
  Vancomycin
  Digoxin
  Lidocaine
  Outcomes in Busulfan therapy for bone marrow transplants in children

2:30 PM –Case studies in digoxin therapy
  An initial regimen for a patient with atrial fibrillation
  A case history: another patient with atrial fibrillation
  A patient on digoxin and quinidine

3:00 PM – Case studies in Vancomycin therapy – Dr. Jelliffe
  Planning the initial regimen
  Monitoring it

3:30 PM – Break

3:45PM – Modeling Antiepileptic drugs – Dr. Bondareva
4:15 PM – Case studies in antiepileptic therapy – Dr. Bondareva

5:00 PM – Adjourn