3rd Pharmacokinetics & Pharmacodynamics Conference

Oct 24-26, 2012; Philadelphia, PA

Day 2 (Oct 25), 2:20 pm

Pharmacokinetics and PhysioPD™ Modeling of Ursodiol in Neonates

Dr. Toufigh Gordi, President, PK/PD and Clinical Pharmacology Services, **Rosa & Co.**

Dr. Toufigh Gordi will present a modeling project of ursodiol in neonates, receiving microdoses of the compound both in the presence and absence of a therapeutic dose. Serial blood samples were collected and plasma concentrations were determined by Accelerated Mass Spectrometry (AMS). The plasma concentration-time data from all neonates were modeled using a mixed effect modeling approach. The data exhibited large interindividual variability, which was captured by the PK model. However, the PK model did not offer any insight on the reason for the observed variability. In order to elucidate the cause of the variability, a systems pharmacology (PhysioPD™) model was developed and used for simulations. The PhysioPD model identified polymorphism in two liver transporters to be the cause of the observed variability, with simulation results matching the different pronounced patterns of the observed concentration-time data in these neonates. The results validate the use of a mechanistic modeling approach, PhysioPD, to offer valuable insight in evaluating drug development process in pediatric population.