Effective Communication of Covariate Effects

Co-Chairs
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Description
Covariate analysis is considered a critical part of population analyses based on the identification of intrinsic and extrinsic factors contributing to parameter variability. Often a small subset of statistically significant covariates is deemed clinically important in explaining a clinically relevant change in drug exposure and ultimately affecting drug dosing. Forest plots, a visual aid to communicate covariate effects in a concise and readily interpretable manner (Menon-Andersen et. al., CPT, 2001), often include bounds that may be used to differentiate statistically significant and clinically important covariates. These bounds and factors used to determine clinically important covariates are not well discussed in the literature. Furthermore, population analysis results are often difficult for clinicians to interpret, thus limiting their potential usefulness in aiding dose individualization (Duffull et. al., BJCP, 2010). This symposium is proposed to highlight and discuss: 1) methods of effective communication of covariate effects and 2) factors that may be considered in differentiating clinically important and statistically significant covariates.

Learning Objectives
- Describe in detail methods for effective communication of covariate effects.
- Discuss potential factors to be considered for the identification of clinically important covariates.

Session Speakers and Presentations

Stephen Duffull - Covariate selection – from biology to clinical use
This presentation will provide a framework for considering the selection and significance of covariates that spans from evaluation of their relationship on the causal pathway (biological significance) to their application in clinical care. This work will highlight the application of population analysis and QSP models to help inform covariates that will impact clinical care.
Rajanikanth Madabushi - Forest plot - considerations to communicate covariate effects

This presentation will focus on the construction, interpretation, and important features of forest plots to visualize and communicate covariate effects. Various methods of construction will be presented, along with the corresponding interpretations of the plot findings and limitations of forest plots as a visualization tool.

Julie A. Stone - Determination and Communication of the Clinical Relevance of Covariate Effects: Examples from Industry

This presentation will discuss the factors to be considered in establishing bounds for clinical significance of covariate effects. PK and PK/PD examples will be presented as well as the differences in consideration and communication based on the intended application of the model.

Kelly Mahar - Population Kinetic/Pharmacodynamic (K/PD) Analyses of Daprodustat (Prolyl Hydroxylase Inhibitor) in Non-dialysis (ND) and Hemodialysis-Dependent (HDD) Anemia Patients with Chronic Kidney Disease (CKD)

Poster abstract speaker - Poster T-041  Tuesday 8-9 AM