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The use of asymmetric distributions in average bioequivalence

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The use of asymmetric distributions in average bioequivalence could be a good alternative for standard model to assess bioequivalence. In summary, we proposed an evaluation of bioequivalence using univariate and bivariate models based on an extended generalized gamma distribution and a skew-t distribution, under a Bayesian perspective. We introduced a study of the empirical power of hypothesis tests for univariate models, showing advantages in the use of an extended generalized gamma distribution. Three sets of bioequivalence data were analyzed under these new procedures and compared with the standard model proposed by the majority of regulatory agencies. In order to verify that the asymmetrical distributions are usually better fitted for the data, when compared with the standard model, model discrimination methods were used, such as the deviance information criterion (DIC) and quantile-quantile plots. The research concluded that, in general, the use of the extended generalized gamma distribution may be more appropriate to model bioequivalence data in the original scale.

Biography

Roberto Molina de Souza has completed his PhD from University of Sao Paulo, Brazil. He is an Adjunct Professor and Head of the Mathematics Department in the Technological University of Parana in the city of Cornelio Procopio, Parana, Brazil. He has published applications of statistical models in medicine and engineering.

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