[S3-3] [4/18/2003(Fri) 11:10-11:50/Grand Hall]

On Sample Size Calculation in Bioequivalence Trials

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Sample size calculations play an important role in bioequivalence trials. In almost all clinical trials sample size is determined by considering power under the alternative hypothesis. The alternative hypothesis is the hypothesis that we wish to prove with experiments. Hence, in bioequivalence trials the alternative hypothesis is that two formulations are bioequivalent, while the null hypothesis is that the two formulations are not bioequivalent. Since the alternative and the null hypothesis are reversed compared with the usual hypotheses in clinical trials, the sample size formulas used in usual clinical trials can not be used in bioequivalence trials. In this paper we introduce the sample size formulas which can be used in bioequivalence trials with 2× 2 crossover design. The regulatory guideline recommends that 2× 2 crossover design is conducted and raw data is log-transformed for statistical analysis. The Schuirmanns's two one-sided procedure is employed as a test method. By mathematical derivation the power of Schuirmanns's two one-sided procedure is obtained under the alternative hypothesis. Then the sample size will be calculated to achieve 80% or 90% power under the clinically meaningful alternative hypothesis. The sample size will be computed with the various combinations of the values of several parameters. The practical meaning of those values will be discussed. The U.S. Guideline requires the minimum 12 subjects in a bioequivalence study, while the Korean Guideline does not have a specific minimum requirement of the sample size. The meaning of the minimum sample size requirement will be discussed

In this paper, we discuss the sample size calculation in 2× 2 crossover design with the log-transformed data.