11 Statistical Considerations for Establishing Bioequivalence

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INTRODUCTION

The assessment of "bioequivalence" (BE) refers to a procedure that compares the bioavailability of a drug from different formulations. Bioavailability is defined as the rate and extent to which the active ingredient or active moiety is absorbed from a drug product. For drug products that are not intended to be absorbed into the bloodstream, bioavailability may be assessed by measurements intended to reflect the rate and extent to which the active ingredient or active moiety becomes available at the site of action. In this chapter, we will not present methods for drugs that are not absorbed into the bloodstream (or absorbed so little as to be unmeasurable) or where the concentration-time profile of the drug in the bloodstream is not considered to reflect the rate and extent of the drug at the site of action (e.g., topically active products). However, statistical methodology for these drugs, in general, will be approached in a manner consistent with methods presented for drugs that are absorbed and where that absorption is meaningful.

Thus, we are concerned with measures of the release of drug from a formulation and its availability to the body. BE can be simply defined by the relative bioavailability of two or more formulations of the same drug entity. According to 21 CFR

* Deceased (1929–2011).