

4. REASONS FOR STABILITY TESTING

4.1. Our Concerns for Patients' Welfare

Obviously, our primary reason for stability testing should be our concern for the well-being of the patients who will use our products. Sometimes in the mad rush to comply with other requirements, this important fundamental may be discounted or forgotten. Indeed, sometimes one gains the impression that in some quarters stability is regarded as having little clinical relevance. Certainly, if a product that does not degrade to toxic decomposition products and that is not characterized by a narrow therapeutic ratio is present on the market at only 85% of label claim, one would not expect patients to be dropping dead in the streets because of this deficiency instability. However, this is not to say that stability problems can never have serious clinical consequences. For example, in the early 1980s a packaging stability problem with nitroglycerin tablets unfortunately resulted in some nitroglycerin tablets being available in the Midwest with potency values of less than 10% of label claim. Since nitroglycerin is used for the emergency treatment of a most serious cardiac condition, angina, there is unfortunately strong cause for concern that some patients may have died as a result of this stability problem.

Even if death is not likely because of stability problems with a particular drug product, the inconvenience, discomfort, and cost associated with the use of product that is subpotent or exhibits an unacceptably wide range of potencies may be a serious problem needing radical remedial response. For example, concerns about possible potency problem with L-thyroxene products were of considerable importance in stimulating the FDA to require, in August 1997, that all human L-thyroxene products that were on the U.S. market at that time could only remain on the market until August 2000, unless new regulatory NDAs (New Drug Applications) or ANDAs (Abbreviated New Drug Applications) were approved (12).

4.2. To Protect the Reputation of the Producer

We should all be jealous for the reputation that the stability of our pharmaceutical products—compounded or manufactured—enjoys. Thus a most important reason for conducting a stability testing program is to assure ourselves that our products will indeed retain fitness for use with respect to all functionally relevant attributes for as long as they are on the market.

4.3. Requirements of Regulatory Agencies

In many parts of the world, there are legal requirements that certain types of stability tests, as required by regulatory agencies, must be performed (13). Obviously, the law must be obeyed. However, it is wrong to abdicate from all scientific judgement and only conduct those stability tests that a regulatory agency is perceived as requiring. Indeed, there are occasions when any manufacturer with a true dedication to quality will perform stability tests that are over and above those required by regulation.

4.4. To Provide a Database That May Be of Value in the Formulation of Other Products

Data obtained in the stability evaluation of product X in 1999 may prove to be of value when, in 2003, we start developing product Y. There may be occasions,