SECTION

APPLICATION OF PATHOMORPHOLOGICAL METHODS IN TOXICITY STUDIES IN ANIMALS

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The primary objectives of toxicological testing are to determine the effects of chemicals on biological systems and to obtain data on the dose-response characteristics of the chemicals. Selection of the most appropriate test procedures, coupled with strict adherence to acceptable experimental practice and astute observation, is of paramount importance in experimental toxicology.

Several types of toxicity testing procedures have been developed for acute, subacute and chronic studies. From the viewpoint of pathology, the variety of toxicity tests leads to many different approaches, and skill and flexibility in working procedure seem to be far more important than is a strict schedule.

Pathomorphological examination is often the cornerstone of experimental toxicology, with decisions regarding the safety of a compound based on this evidence. This fact charges the pathologist with the special responsibility to carry out the studies in the way most likely to produce optimum results (1-3).

The basic ideas of morphological methods as applied in toxicology are the following:

- provide information on the cause of animal death in the course of experiment;
- estimate the degree of irritating effects of chemicals depending on the routes of administration (injury of the alimentary canal, skin, peritoneum or respiratory tract and lungs);
- define the degree of development and morphological characteristic of injuries in organs affected to distinguish reversible functional and morphological changes from severe irreversible injury; and
- define the dose-response relationship of morphological changes.