The Intestinal Tract

STRUCTURE, FUNCTION AND PATHOLOGY IN TERMS OF THE BASIC SCIENCES

By

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PREFACE

THE NEED for a reference volume on the intestinal tract becomes apparent when an attempt is made to obtain a description of its activities from scattered literature references or general text books. The present work is designed to fill part of this need by presenting a source of data basic to an understanding of the intestine. A discussion is given of intestinal structure, function, and pathology so that physicians, research workers, and students can have at their fingertips data which have been quite scattered. Intestinal activities are presented, when possible, in terms of measurable parameters. Methods developed in the last decade supplement older procedures and permit an evaluation of alimentary function with some accuracy (techniques such as mucosal biopsy during life, analysis of enzymes translocated from the intestine to the blood stream, and the use of radioisotopes to follow digestion, absorption, and enzyme production).

Intestinal performance is presented from the view point of the basic processes involved. Ideally, the prime focus of such a study is the individual cell. However, until data concerning the metabolism of each type of intestinal cell are available, we can cautiously rely on fragmentary reports in interpreting normal variations and the altered processes of disease states. Studies relating to the subject, originating from both clinical and laboratory groups, are located in diverse journals. The first task has been compilation, for the availability of this information is prerequisite to its use. The second task has been exposition and correlation, so that a somewhat comprehensive picture emerges. Much of our information has been gathered during studies of disease processes, and attention is given, particularly in the second half of the book, to clinical alterations.

This however is not primarily a book about "bedside gastro-

enterology" in the usual sense (several such volumes are available and provide dosage schedules and other clinical details). Rather, this is a presentation of data necessary for the interpretation of intestinal function and dysfunction. In areas in which clinical aberrations are apparent but no basic data are gathered, findings have been presented, of necessity, in clinical terms. The book may thus serve as a reference for clinical studies, an introduction to the pertinent literature for scientists, and a text for students. No pretext is made to exhausting the subject or including all pertinent references. In a number of instances, more recent but less definitive papers have been listed because of their contained bibliographic material; hence the listing of an article does not necessarily mean that it has chronologic priority. My debt to those who have contributed reviews of the literature is obvious. Certain subjects of great interest in themselves, which have been extensively dealt with elsewhere, are only mentioned in passing. Thus the areas of intraluminal pressure changes, theory of active transport, the mucous barrier, intestinal motility and the portal circuit, are discussed briefly and further reading sources suggested.

During the digestive process, secretions from the stomach, liver, pancreas, and intestine are churned together with food materials. Digestion and absorption take place from this complex medium which is a clinical reality, but a biochemist's nightmare. It is impossible to analyze the situation in a few words or a handful of equations. Out of necessity, the subject has been subdivided for ease of presentation. It should be borne in mind tnat the body recognizes no such divisions. Acts within the intestine take place sequentially, usually under excellent coordination. We lack information as to the overall mechanisms integrating such acts; this is but one of the problems whose solution awaits the future.

Errors of omission and commission are all too likely to appear in such a volume. For these the author expresses regret, and hopes the reader will call them to his attention. The most serious lack though, is a paucity of data to illuminate, correlate and define the varied aspects of intestinal function. Information will have to be gathered from both the clinic and the laboratory to fill in these blanks.

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R. P. S.

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