Handbook of Treatment of ACUTE POISONING

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HANDBOOK OF TREATMENT OF ACUTE POISONING

TO

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Founder of the Department of Metabolism and
Toxicology of The Montreal General Hospital

PREFACE

The scope of this handbook is intentionally limited. It is primarily a guide to treatment. Medico-legal aspects are not presented. Acute poisoning only is dealt with and the emphasis is on emergency measures. No more than incidental references are made to chronic intoxications or to the late consequences of acute intoxications. Although many industrial poisons are included, we have not attempted to cover this field. Physicians who serve industries can anticipate hazards and thus have ample opportunity to obtain the information they need from standard texts of chemistry, pharmacology and industrial toxicology. Our handbook is intended to fulfil two purposes. First, we hope it may help physicians with no special experience in toxicology when called upon suddenly and unexpectedly to treat cases of acute poisoning. Second, Section I and selected material from Section II may be used as the basis of courses in the management of acute poisoning for students of medicine.

Section I is devoted to the basic principles, general plan and methods of treatment. A thorough grasp of the contents of this section will enable the physician to treat acute poisoning without knowledge of the exact identity of the poison. Section II contains descriptions of important types of acute poisoning and their treatment. Most of the substances dealt with are relatively common causes of poisoning. Frequency of occurrence

has been the main basis of selection. However, a few rarer poisons have been included because their mode of action or treatment presents special features. Proper use of Section II is dependent upon complete familiarity with the basic principles and procedures described in Section I.

The contents of an emergency poison kit are listed in the appendix. This kit should always be stocked and ready for use. The appendix also contains brief notes on the collection and preservation of samples for chemical analysis and a bibliography.

All dosages in this handbook apply to adults. For infants and children these doses must be appropriately modified on the basis of body weight. The bibliography (p. 205) contains references to books dealing specifically with the management of poisoning in childhood.

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We wish to express our appreciation of the interest which Dr. C. P. Stewart has taken in our handbook. It was he who stimulated us to prepare this second edition. To Mr. Charles Macmillan and his associates of E. & S. Livingstone Limited we offer our warm thanks for the friendly, skilful and efficient manner in which they have handled the details of publication.

Our greatest debt is to Dr. I. M. Rabinowitch. He introduced us to the subject of toxicology. Through his inspired teaching he shared with many hundreds of students his vast knowledge and unquenchable enthusiasm. We were among those students and to him we have respectfully dedicated this book.

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SECTION I

BASIC PRINCIPLES, GENERAL PLAN AND METHODS OF TREATMENT

BASIC PRINCIPLES OF TREATMENT

It is commonly believed that successful treatment must rest on recognition of the poison and the use of an antidote which specifically counteracts that poison. This emphasis on recognition of the poison and use of specific antidotes is not justified. In acute poisoning treatment cannot wait upon identification of the toxic agent. Success depends on prompt action. Identification of the poison may be slow and uncertain. Histories may be unreliable or not available. Symptoms may be confusing. Toxicological analyses may require hours or days. Even when the exact identity of the poison is known, there is often no specific antidote or, if one is available, its use constitutes only a small part of the treatment. It is therefore important to be familiar not only with specific antidotes but also with basic principles and procedures applicable to a great variety of types of acute poisoning.

The treatment of acute poisoning consists essentially of measures designed to (1) prevent further exposure to the poison, (2) keep the airway clear, (3) control respiratory depression, shock, convulsions and secondary infection and (4) remove and inactivate the poison.

Prevention of further exposure to the poison

The need for this is obvious. When attempted suicide or homicide is suspected, special care is required to eliminate the chance of further exposure.

Maintenance of a clear airway

Obstruction of the airway is commonly met with, especially in unconscious patients with no swallowing and coughing reflexes. It is usually due to accumulation of bronchial secretions, aspiration of saliva or of gastric contents during vomiting or lavage, or falling back of the tongue against the soft palate or pharynx. A less common cause is oedema or spasm of the glottis due to inhaling or swallowing an irritant or corrosive. Not infrequently clearing an obstructed airway changes an apparently hopeless case into one with an obviously excellent chance of recovery.

Control of respiratory depression

Depression of the respiratory centre of the medulla, with decrease in pulmonary ventilation, is a prominent feature of acute poisoning by central nervous system depressants. In severe cases complete failure of respiration and death may ensue. Respiratory depression and failure are however not confined to this type of poisoning. Excitation by central nervous system stimulants may be followed by respiratory depression. Any general protoplasmic poison may depress the respiratory centre by damaging the medulla. Anoxia from any cause, such as toxic inactivation of haemoglobin, shock or blockage of the airway, may depress the medulla. Some poisons produce partial or complete paralysis of the respiratory muscles by blocking myoneural junctions. Thus respiratory depression, although especially characteristic of poisoning by