

Book review: “Critical Care and Laboratory Medicine”

Joseph B. Lopez

MAHSA University, Kuala Lumpur, Malaysia

REVIEWED BOOK

“Critical Care and Laboratory Medicine”

by Peter Gosling, Anne Sutcliffe,
and Stephanie Dancer

Editors: Janet Horner and Helen C Losty

Publisher: ACB Venture Publications

2016; 166 pages

ISBN: 978-0-902429-47-5

EAN: 978090242475

Reviewer:

Joseph B. Lopez

Kuala Lumpur

Malaysia

E-mail: jblopez2611@gmail.com

RECESSION

Care of the critically ill is a team effort where doctors and nurses heavily depend on laboratory measurements. The mortality rate of such patients is between 30 to 40%. The authors are, appropriately, an anaesthetist, a medical microbiologist and a clinical scientist, all of whom are key specialists that would make up the team. Their stated goal is to enable laboratory personnel to understand the contributions of the other team members.

The management of critical illness requires an appreciation of the physiological effects of the acute disease process, its ability to incite systemic inflammatory response, the needs of each affected organ, the impact and potential side-effects of interventions and the ability to adapt care to the individual patient’s needs. The commonest cause of death in these patients is uncontrolled systemic inflammatory response syndrome (SIRS) leading to multiple organ dysfunction syndrome (MODS).

Most chapters provide an overview of the normal function of each organ, its pathogenesis and the essential role of the laboratory in understanding the process, the current strategies for the early identification of SIRS, the assessment of its severity, prevention,

diagnosis and treatment. The coverage of the book is comprehensive and includes the failure of the cardiovascular, respiratory, gastrointestinal (gut, liver and pancreas) and renal organs. The less common causes of admission into the intensive-care unit (ICU) such as failure of immunity, acute liver failure, acute pancreatitis, injury from burns and endocrine emergencies (such as diabetic ketoacidosis) also receive attention.

The importance of the microbiology laboratory is highlighted by way of a separate chapter that describes its support for the diagnosis, management and prevention of infection of patients in the ICU. As would be expected, routine tests that are associated with disease of the various organs or systems are described. For example, patients requiring intensive care are at risk of acute kidney injury (AKI). Its diagnosis and management are crucially dependent on serial measurements of the traditional analytes. In failure of the primary central nervous system, which is a common reason for admission to the ICU, the principle role of the laboratory in the investigation of the unconscious patient is to aid in the diagnosis of infective causes of primary brain injury. The metabolic, endocrine and toxicological causes of secondary brain injury and the relevant tests that need to be undertaken are also discussed. Stage III SIRS is associated with the failure of immunity, haemopoiesis and haemostasis. The clinical signs of these conditions when deranged are non-specific. To monitor these conditions and assess treatment, the routine laboratory investigations that are performed include haematological, coagulation, D-dimer and C-reactive protein measurements.

An attractive feature of the book is the attempt to keep the reader abreast with the newer tests

and the current perspectives on regular tests. Several examples of this can be cited. Troponin I or T are not just specific and sensitive markers for myocardial damage but elevated levels in MODS are an independent risk factor for ICU mortality in patients without evidence of acute myocardial infarction. In AKI, new markers such as neutrophil gelatinase associated lipocalin (NGAL) have been proposed to enable early detection of the condition before functional abnormalities are manifest. While there are few circulating markers of brain injury or dysfunction, proteins such as the tau protein and neurone specific enolase have the potential to serve as circulating markers of brain injury. The markers of gut failure and the laboratory assessment of nutrition in critical illness are meant evaluate gut function and are important because of evidence that gut function and poor outcome are associated.

The book contains an index and a list of the abbreviations used, both of which are helpful. A succinct summary is provided towards the end of each chapter and this is followed by a short list of important references. There are elegant tables that illustrate and display key information. While two case studies are described, more would have enhanced the book. There is a moot point that may puzzle the attentive reader: both Stage 3 SIRS and stage III SIRS are mentioned. Are both forms of usage acceptable?

This book is devoted to an important group of patients where the support of laboratory medicine transcends its traditional boundaries. In most textbooks of laboratory medicine there is usually little mention support for the critically ill. As such, it should be an invaluable reference for anyone who is involved in the care of these patients.