

**CLINICAL  
HANDBOOK**  
OF  
**ANTITHROMBOTIC**

A Practical Guide

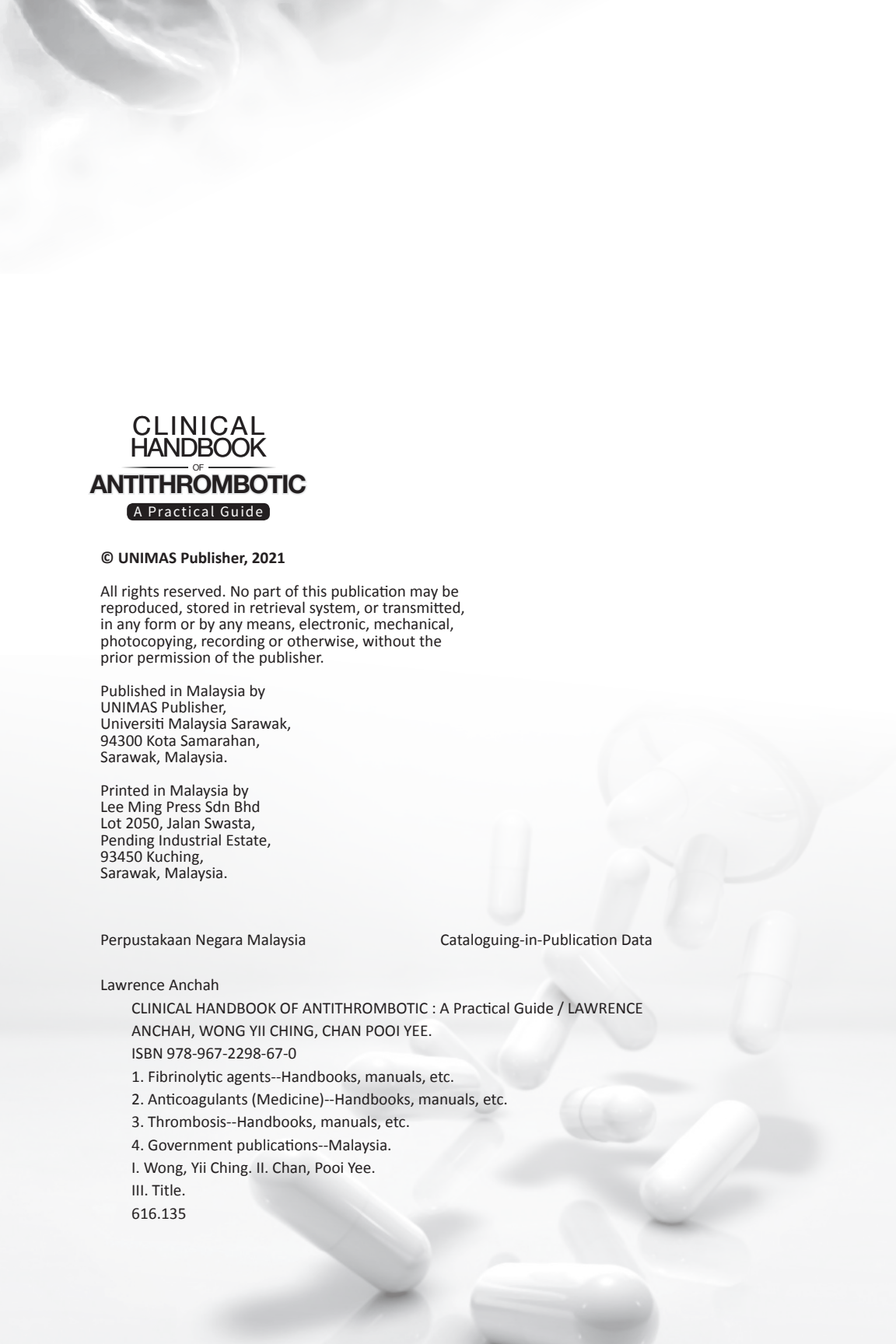
LAWRENCE ANCHAH  
WONG YII CHING  
CHAN POOI YEE

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UNIVERSITI MALAYSIA SARAWAK



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Although every effort has been made to ensure the information and drug doses in the handbook are correct and accurate, the responsibility lies with the prescribers. The authors and the publisher of this work have checked sources believed to be reliable in their effort to provide information that is complete and accepted at the time of publication. The authors cannot be held responsible for errors or any undesirable consequences arising from the use of the information contained in this handbook. Always refer to the manufacturer's prescribing information before prescribing drugs cited in this handbook in particular with new or infrequently used drugs.



## Preface

Antithrombotic agents are high risk medications associated with significant rates of medication errors. The use of antithrombotic agents is extensively high in cardiology and medical specialties; thus, a good understanding of antithrombotic agents is essential.

A group of pharmacists has work collectively to come out with this handbook focusing on antithrombotic agents that commonly established in Sarawak Heart Centre. The purpose of this handbook is to serve as a reference material on antithrombotic agents for pharmacists, nurses, medical officers, medical interns, students and other healthcare providers in the medical field. Therefore, additional basic knowledge of pharmacogenetics and pharmacogenomics information of patients' response to certain antithrombotic agents are also highlighted in this handbook. I hope the healthcare providers, trainees and students will find this handbook useful during their course of duties.

Dr Mohd. Asri bin Riffin  
**Director**  
**Sarawak Heart Centre**



———— Part One ————

# Introduction of Antithrombotic

The coagulation process is a complex chain of reaction that leads to haemostasis. With that, antithrombotic are drugs that manipulate the blood coagulation process by inhibiting the formation of thrombus during haemostasis phase.

### Haemostasis

- In event of an injury, a series of processes involving vasoconstriction, platelet activation and blood coagulation occurs to prevent blood loss. This physiological response is called haemostasis.
- Primary haemostasis involves vasoconstriction and platelet activation and aggregation, facilitated by the von Willebrand factor (vWF) and fibrinogen glycoproteins to form a platelet plug.
- Secondary haemostasis involves the coagulation cascade (see figure 1) which converts fibrinogen to fibrin. Fibrin strands reinforce more platelet plug and trap red blood cells to form a blood clot.

### Coagulation Cascade

- Coagulation cascade (*see Figure 1*) is a series of biochemical processes in the blood involving the activation of proenzymes, proceeding through a pathway of coagulation to form a fibrin clot.