

PREFACE

Platelets are small anucleate blood-borne particles that play a central role in blood clot formation. In areas of endothelial damage or activation of the coagulation cascade, they change shape, release their granule contents, and activate. This process transforms the smooth discoid platelet into a sticky spiculated particle with the ability to bind to the plasma protein fibrinogen, forming a clot. Congenital or acquired defects of platelet function are rare and usually result in minor bleeding defects. Conversely, inadvertent or excessive platelet activation is common, for example, at the site of endothelial damage, and underlies many common cardiovascular disorders, such as myocardial infarction, unstable angina, and stroke. Antiplatelet agents play an important role in the management of these conditions, and a number of agents are now available to treat them.

Platelet function is difficult to assess, with many of the assays based on platelet aggregation. The relative paucity of approaches is a major limitation to the understanding of platelet biology, the assessment of thrombotic risk in patients, and the rational dosing of antiplatelet agents. *Platelet Function: Assessment, Diagnosis, and Treatment* focuses on platelet biology and reviews current methods of assessing platelet function.

The first section, on platelet physiology, provides the reader with an understanding of the platelet biology underlying functional analyses. The second section reviews means of assessing platelet function, including the commonly used platelet aggregation, thromboxane production, expression of platelet activation markers, procoagulant activity, and platelet function under-flow. Also discussed are the fast developing fields of proteomics and genomics and their application to platelet research. Chapters focus both on the technology and the outcome of research on platelets. The final section describes the clinical application of the various methods for the assessment of platelet function in vivo and provides an overview of antiplatelet therapy.

Platelet Function: Assessment, Diagnosis, and Treatment is aimed at an audience of scientists, clinical researchers, clinicians, and other health care workers with an interest in platelet biology.

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Platelet Function

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