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Preface

Laboratory Diagnostics for Thrombosis and Hemostasis Testing—Part III

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Welcome to the third themed issue of *Seminars in Thrombosis and Hemostasis* focused on the topic of laboratory diagnostics. This issue includes several comprehensive reviews that dive into important aspects of hemostasis/thrombosis testing and an original research article addressing diagnostic algorithms for heparin-induced thrombocytopenia (HIT). As the issue publishes in 2024 and is the last issue slated for a 2024 issue, there is additional content. The issue starts with several editorials, one announcing the latest round of Eberhard F. Mammen Young Investigator Award winners,[1] and the second announcing the journal's latest impact factor as well as several other journal metrics.[2]

Specific issue content follows, with the first review of this issue from Bahraini et al, exploring laboratory diagnosis of activated protein C resistance and factor V Leiden; this review details technical aspects of the methodologies used, emphasized in informative figures, as well as approaches for resolving challenges such as genotype–phenotype discrepancy.[3]

In the next manuscript, Reilly-Stitt and colleagues address internal quality control in hemostasis assays, where they report results of survey data from participants in the UKNEQAS (United Kingdom National External Quality Assessment Scheme) for Blood Coagulation.[4] The survey questions and responses help the reader understand best practices, but also highlight the between-laboratory variability that exists and opportunities for improvement. The third contribution in this issue, written by Gosselin and other laboratory experts representing the International Council for Standardization in Haematology, also highlights quality practices.[5] They address the practical topic of new lot verification of coagulation reagents, calibrators, and controls, an area where additional standardization would benefit the field.

Our fourth review provides an important spotlight on the variable performance of lupus anticoagulant testing using Australasian external quality assessment (EQA) data from the Royal College of Pathologists of Australasia Quality Assurance Programs.[6] In this manuscript, Favaloro and colleagues show the most commonly used methods for lupus anticoagulant detection and the degree of numerical result variability between laboratories. However, the data also show that despite this variability, laboratory qualitative classification is less variable, at least for the clearly positive and clearly negative samples distributed by this EQA program.

Laboratory pearls and pitfalls of measuring direct oral anticoagulants (DOACs) is the focus of the next manuscript.[7] Prepared by Lippi and Favaloro, their guidance summarizes screening and quantitative tests for DOAC medications and potential streamlined laboratory strategies. An important point is that routine coagulation tests such as the prothrombin time and activated partial thromboplastin time (aPTT) are not sensitive enough to exclude low drug concentrations that may be relevant in high bleeding risk procedures.

The sixth contribution in this issue of the journal is an original research article addressing the crucial topic of laboratory testing for HIT using automated rapid immunoassays.[8] In the manuscript, Bissola et al summarize the performance characteristics, such as sensitivity and specificity and predictive value, of this assay class when multiple tests are used in combination (either simultaneous or sequential). Based on their data, they recommend simultaneous performance of a latex immunoassay and chemiluminescent immunoassay to achieve the best performance. Due to a low rate of false-negative results with this approach, they continue to recommend confirmatory functional assays in certain result scenarios.

Moving back to state-of-the art reviews, Moore then shows us how thrombophilia testing continues to be less than straightforward.[9] He begins with a thorough discussion of thrombophilia risk factors, including rare but important variants. A key take-home point is that no single phenotypic test will identify all variants and unfortunately some variants

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may give normal or equivocal results in all phenotypic tests performed, necessitating a high degree of clinical suspicion to continue seeking a diagnosis. Genotyping, although not widely performed in clinical practice, may be the only way to identify certain thrombophilic defects.

The last two manuscripts to be included in the themed portion of this issue offer insights into the monitoring of important anticoagulant and hemostatic therapies. Arachchillage and Kitchen first tackle the issue of heparin monitoring, including a discussion of heparin properties that includes unique and interesting anti-inflammatory properties.[10] Both laboratorians and non-laboratorians will value their discussion of aPTT versus anti-Xa testing for heparin, which is not always a clear-cut choice. In the final contribution to the issue, Kershaw provides strategies for performing coagulation testing, such as factor assays, in the presence of the novel hemostatic agent emicizumab (and other emerging novel agents).[11] The information on how to measure/monitor these agents, and their impacts on unrelated assays, is a welcome addition to the laboratory knowledge base.

In summary, we are excited to present this laboratory-centric issue of *Seminars in Thrombosis and Hemostasis* and hope our readers will enjoy reading the content covering important modern issues in hemostasis/thrombosis testing.

However, as noted at the beginning of this Preface, as this issue publishes in 2024, we are including the re-publication of a historical paper, as well as an accompanying Commentary. In this issue, we are pleased to include the re-publication of a review on platelet physiology from the authorship team of Gremmel, Frelinger, and Michelson.[12,13] Fittingly, the same team (plus some) have provided the accompanying Commentary.[14]

Conflict of Interest
None declared.

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