

## Current Topics from the Revised German S2k Guideline on Diagnosis and Treatment of Venous Thromboembolism

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Hamostaseologie 2024;44:90–92.

It is an honor and a great pleasure for us to be guest editors for this special issue of *Hämostaseologie – Progress in Haemostasis*, which addresses important issues surrounding the complex of venous thromboembolism (VTE). In February 2023, the revised guideline on “Diagnostics and Therapy of Venous Thrombosis and Pulmonary Embolism” has been published on the website of the Association of the Scientific Medical Societies in Germany (AWMF)<sup>1</sup>. This guideline was drawn up under the leadership of the German Society of Angiology (DGA), and representatives of 17 scientific societies contributed to its content. As an S2k guideline, its recommendations are consensus based and are the result of a systematic review and evaluation of current evidence and consideration of the benefits and harms of diagnostic and therapeutic options. In this special issue, guideline authors provide a comprehensive overview of selected guideline topics which might be of clinical relevance to our readers and our community of haemostaseologists.

In the first article of this special issue, **Linnemann et al**<sup>2</sup> present a state-of-the-art overview of the diagnosis and treatment of lower extremity deep vein thrombosis (LEDVT). Since the symptoms of LEDVT are nonspecific, a prompt and standardized diagnostic workup is essential to ensure the earliest possible start of treatment with the aim to minimize the risk of pulmonary embolism (PE) in the acute phase and to prevent thrombosis progression, recurrence of VTE, and post-thrombotic syndrome in the long term.

Acute PE is related to significant morbidity and mortality in the acute phase of VTE and requires prompt diagnosis and management. In this issue, **Opitz and Meyer** give an overview about the pretest probability scores, diagnostic algorithms, and risk stratification models when PE has been

confirmed.<sup>3</sup> The authors also provide an overview of risk-adapted treatment strategies, such as early revascularization procedures in hemodynamically unstable patients, monitoring and anticoagulant therapy for patients at intermediate risk, and finally outpatient treatment or early discharge of patients at low risk. The article by **Janssens** focuses on specific aspects of intensive care treatment for patients with severe PE and circulatory or respiratory failure, such as ventilation, volume therapy, pharmacological treatment with vasopressors and inotropics, mechanical circulatory support, and reperfusion therapy.<sup>4</sup> Finally, **Meyer and Opitz** provide an excellent overview on the relevant aspects of the post-PE syndrome, which manifests with pulmonary hypertension (chronic thromboembolic pulmonary hypertension [CTEPH]) or with normal pulmonary artery pressure (chronic thromboembolic pulmonary disease [CTEPD]).<sup>5</sup> Because the management of CTEPH is complex, patients with suspected or confirmed CTEPH should be referred to specialized centers for comprehensive invasive diagnostic assessment and interdisciplinary decision-making on treatment options.

Visceral vein thrombosis (VVT) is often related to liver cirrhosis, myeloproliferative neoplasia, or severe thrombophilia such as the antiphospholipid syndrome. Although the risk of bleeding complications is increased, anticoagulant therapy remains the first-line therapy in patients with stable circulation and no evidence of organ complications. Treatment recommendations, reviewed by **Mühlberg** in this issue, are mainly based on case series, observational studies, or studies with small case numbers.<sup>6</sup> Treatment decisions therefore have to be made on an individual basis taking into account the patient's risk of bleeding and recurrent thrombosis.

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Georg Thieme Verlag KG,  
Rüdigerstraße 14,  
70469 Stuttgart, Germany

DOI <https://doi.org/10.1055/a-2239-0770>.  
ISSN 0720-9355.



Tumor patients have an increased risk of VTE when compared with nontumor patients, which has a negative impact on the quality of life, morbidity, and mortality. While low-molecular-weight heparins (LMWHs) have long been the anticoagulants of choice for patients with cancer-associated VTE (CT), recently published randomized trial data show advantages of the direct factor Xa inhibitors (DXIs), but also some disadvantages in terms of bleeding complications. **Riess et al** provide an overview of current study data and recommendations for the treatment of CT.<sup>7</sup>

Despite the proven efficacy of anticoagulation, approximately 2% suffer a VTE recurrence during anticoagulant therapy. **Klamroth et al** provide an overview of possible causes (e.g., nonadherence to medication, subtherapeutic drug levels due to resorption disorders, drug–drug interactions, concomitant disease with high thrombogenicity) and highlight management options (e.g., switching and/or intensifying anticoagulant treatment), which are mainly based on expert consensus in the absence of study data.<sup>8</sup>

It should be noted that the applicability of evidence- and consensus-based guideline recommendations must always be assessed in the individual situation. In this respect, guidelines are to be understood as “corridors for action and decision-making.” However, in justified cases, deviations can or even must be made.

We highly appreciate the time and effort all our authors have spent in preparing their manuscripts. We cordially thank them and the expert reviewers for actively supporting this special

issue, and we are confident that the articles provided will serve as state-of-the-art references for our everyday clinical work.

#### Conflict of Interest

The authors declare that they have no conflict of interest.

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