Editorial

Know your history

Over the past decades, the diagnostic management of suspected venous thromboembolism (VTE) has progressed considerably. Where conventional venography or angiography were the main diagnostic tests until the end of the 20th century, current diagnostic algorithms mostly consist of carefully selected and validated sequential diagnostic tests, including clinical decision rules, biomarkers and modern imaging tests with personalized thresholds for normal or abnormal, allowing for the rejection of the diagnosis in up to 50% of patients without the need to perform imaging tests at all [1–3]. Advanced non-invasive imaging techniques with fast acquisition time and high accuracy have nowadays replaced conventional angiography, and a new generation of direct thrombus imaging techniques is about to find its way into clinical practice [4–6].

Progress however comes with costs. A relevant decline in the prevalence of VTE has been observed along with earlier mentioned technical advancements, suggesting an ever lowering bar for ordering imaging tests for diagnosing VTE [7,8]. Reasons for this notable trend include among others the better availability, lower costs and increasing safety of modern radiological tests. In contrast, it may also indicate that we physicians do rely less and less on our skills of clinical questioning and physical examination. That may have important consequences for the current recommended diagnostic approach of suspected VTE: the most widely used clinical decision rules to determine the pre-test probability of deep vein thrombosis (DVT) or acute pulmonary embolism (PE), i.e. the Well rules for DVT and PE, are largely driven by the subjective assessment of the treating physician whether DVT or PE are the most likely diagnosis [9,10]. Recent modification of the Wells rule for PE has even resulted in a more prominent role of this clinical assessment [3,11]. Are we keeping up our ability to score this item in the changing landscape of VTE diagnostic management?

In this issue of the Journal, Dr. Ye and colleagues have provided a fascinating historic overview of the way physicians have been looking at patients with (suspected) VTE by summarizing all known eponyms of venothromboembolic signs that were described long before advanced imaging was introduced [12,13]. This review in 2 parts describes physicians that have paved the way for current diagnostic reasoning. In the first part, the ideas of the well-known VTE pioneers Aristotle, Galen, Virchow and Trousseau are discussed, along with reports of pre-war physicians who have made remarkable observations in patients with VTE. For example, in 1895, Mahler proposed that increased pulse rate without a corresponding rise in temperature during the pueperium could indicate acute pulmonary embolism, a very reasonable thought indeed. In part two, the review continues with common and less frequently encountered VTE eponyms identified during physical examination and emerging bed-side imaging tests. The colorful descrip-

tion of the namegivers of the highlighted eponyms provides the necessary perspective of the circumstances in which they lived and worked.

Admittedly, the described eponyms have never been sufficiently studied to be used in modern daily practice, if useful at all, and the scientific methods applied in their original studies and subsequent validation definitely do not meet current methodological standards. Even so, in addition to being entertaining and educational reading, the reviews have taught me an important lesson. The focus of recent diagnostic studies in VTE has predominantly been on advancing imaging techniques. Perhaps it is time that we go back to the basics and put a renewed emphasis on careful clinical examination of patients with suspected VTE. This is absolutely essential to maintain (or even advance) our clinical skills and may further improve the efficiency of contemporary diagnostic strategies. I thank the authors for their fantastic work and heartily recommend reading the two reviews.

References

[1] J.A. Kline, Diagnosis and exclusion of pulmonary embolism, Thromb. Res. 163 (2018) 207–220.

[2] E. Bernardi, G. Camporese, Diagnosis of deep-vein thrombosis, Thromb. Res. 163 (2018) 201–206.

[3] T. van der Hulle, W.Y. Cheung, S. Kooij, L.F.M. Beenen, T. van Bemmel, J. van Es, et al., Simplified diagnostic management of suspected pulmonary embolism (the YEARS study): a prospective, multicentre, cohort study, Lancet. 390 (10091) (2017) 289–297.

[4] C.E. Dronkers, F.A. Klok, M.V. Huisman, Current and future perspectives in imaging of venous thromboembolism, J. Thromb. Haemost. 14 (9) (2016) 1696–1710.

[5] M. Tan, G.C. Mol, C.J. van Rooden, F.A. Klok, R.E. Westerbeek, A. Iglesias Del Sol, et al., Magnetic resonance direct thrombus imaging differentiates acute recurrent ipsilateral deep vein thrombosis from residual thrombosis, Blood. 124 (4) (2014) 623–627.

[6] J. Kelly, B.J. Hunt, A. Moody, Magnetic resonance direct thrombus imaging: a novel technique for imaging venous thromboemboli, Thromb. Haemost. 89 (5) (2003) 773–782.

[7] C.E.A. Dronkers, Y.M. Ende-Verhaar, P.A. Kyrle, M. Righini, S.C. Cannegieter, M.V. Huisman, et al., Disease prevalence dependent failure rate in diagnostic management studies on suspected deep vein thrombosis: communication from the SSC of the ISTH, J. Thromb. Haemost. 15 (11) (2017) 2270–2273.

[8] C.E.A. Dronkers, T. van der Hulle, G. Le Gal, P.A. Kyrle, M.V. Huisman, S.C. Cannegieter, et al., Towards a tailored diagnostic standard for future diagnostic studies in pulmonary embolism: communication from the SSC of the ISTH, J. Thromb. Haemost. 15 (5) (2017) 1040–1043.

[9] P.S. Wells, D.R. Anderson, M. Rodger, J.S. Ginsberg, C. Kearon, M. Gent, et al., Derivation of a simple clinical model to categorize patients probability of pulmonary embolism: increasing the models utility with the SimpliRED D-dimer, Thromb. Haemost. 83 (3) (2000) 416–420.

[10] P.S. Wells, D.R. Anderson, J. Bormanis, F. Guy, M. Mitchell, L. Gray, et al., Value of assessment of pretest probability of deep-vein thrombosis in clinical management, Lancet. 350 (9094) (1997) 1795–1798.

[11] L.M. van der Pol, C. Tromeur, I.M. Bistervels, F. Ni Ainle, T. van Bemmel, L. Bertoletti, et al., Pregnancy-adapted YEARS algorithm for diagnosis of suspected

pulmonary embolism, N. Engl. J. Med. 380 (12) (2019) 1139–1149.

[12] F. Ye, H. Tekiner, E.S. Yale, J.J. Mazza, C. Stalvey, S.H. Yale, Venothromboembolic signs and medical eponyms: part I, Thromb. Res. (2019), https://doi.org/10.1016/j.thromres.2019.06.012.

[13] F. Ye, H. Tekiner, E.S. Yale, J.J. Mazza, C. Stalvey, S.H. Yale, Venothromboembolic signs and medical eponyms: part II, Thromb. Res. (2019), https://doi.org/10.1016/j.thromres.2019.06.011.

Frederikus A. Klok[*]

Department of Medicine - Thrombosis and Hemostasis, Leiden University Medical Center, Leiden, the Netherlands
E-mail address: F.A.Klok@LUMC.nl.

---

[*] Leiden University Medical Center, Department of Thrombosis and Hemostasis, Room C7-14, Albinusdreef 2, 2300 RC Leiden, the Netherlands.