haematologica
Journal of the Ferrata Storti Foundation

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Received: January 11, 2025.
Accepted: January 29, 2025.

Citation: Maria I. Zervou and George N. Goulielmos. Comment on: Multimorbidity, comorbidity, frailty, and venous thromboembolism.
Haematologica. 2025 Feb 6. doi: 10.3324/haematol.2025.287356 [Epub ahead of print]

Comment

Comment on: Multimorbidity, comorbidity, frailty, and venous thromboembolism

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Disclosures

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Contributions

M.I.Z. and G.N.G. designed the current study, searched the literature and drafted the manuscript. Both authors gave final approval and agreed to be accountable for all aspects of work ensuring integrity and accuracy.

Funding

No specific funding was received from any funding bodies in the public, commercial or not-for-profit sectors to carry out the work described in this manuscript.

Acknowledgments

The authors apologize to all researchers whose original articles were not cited in the present article due to references' number limitations in this type of articles.

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We read with great interest the recent article in Haematologica by Zöller and Connors[1], focusing on the role of multimorbidity, comorbidity and frailty in the development of VTE. This article is of great importance, considering that the authors attempted by an elegant way to delineate the association of multimorbidity with an increased risk for VTE. In this framework, this review suggested that identification of useful multimorbidity scores to include in VTE risk prediction models in different clinical scenarios will increase accuracy, whereas comorbidity scores might also be of use to estimate prognosis in patients with VTE. Notably, the authors pointed out that there is no current consensus as to which diseases to include under 'multimorbidity', thus being important to test the different impacts of the diseases that should be considered ultimately in the definition of multimorbidity regarding VTE risk. Taking into account the long-term interest of our research group in the study of the co-occurrence of VTE with various complex diseases, we acknowledge the opportunity given to us herein to add some further information regarding the putative association of various autoimmune diseases with an increased VTE risk.

Although the role of autoimmune diseases was not discussed in the context of the study of Zöller and Connors[1], we wish to point out that an association between systemic lupus erythematosus (SLE)[2], rheumatoid arthritis (RA)[3], Sjogren's syndrome (SS)[4], ankylosing spondylitis (AS)[5], psoriatic arthritis (PsA)[6] and a higher risk of VTE has been reported in previous studies. Noteworthy, aiming to provide a comprehensive update on the understanding of the potential shared genetic component of the aforementioned autoimmune diseases and VTE, we proceeded recently in an extended investigation of the literature. According to the current knowledge, the majority of VTE susceptibility factors are related to haemostatic system and coagulation cascade, while SLE, RA, SS, AS and PsA risk factors are mainly involved in inflammatory response pathways. However, the results of various studies suggested a partially shared genetic background regarding the association of VTE with these diseases and emphasized the role of various gene polymorphisms related to inflammation, immune deregulation, interferon signaling, metabolism and NF-kB pathways[7-9]. Therefore, this genetic data suggests that a "cross-talk" exists between the coagulation and inflammatory pathways, considering that gene polymorphisms involved in inflammation may also result in an increased susceptibility towards VTE[9].

In conclusion, the information presented here provides evidence that physicians with medical specialties from the fields of rheumatology, dermatology, cardiology and hematology should recognize the potential association between various autoimmune diseases and VTE. In this context, autoimmune diseases may deserve further attention among VTE comorbidities. Thus, scientific community and, probably, an expert group may think seriously in the future to include a number of autoimmune diseases in multimorbidity scores for VTE prediction. Moreover, in accordance to the suggestion of Zöller and Connors[1], further research on multimorbidity disease mechanisms may also lead to novel and improved ways to prevent VTE.

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