

## To Test or Not to Test: Thrombophilia in Venous Thromboembolisms

Hung Chang<sup>1,2,3</sup>

Dear editor,

We read with interest the part II consensus guideline on management of venous thromboembolism published recently in *Acta Cardiol Sin*. Together with part I of the guideline, they are constructive, clinically relevant, and relatively complete.<sup>1,2</sup> However, as hematologists are frequently consulted for evaluation of thrombotic disorders, I would like to provide our point of view from a local perspective in Taiwan.

Testing for thrombophilia has been a controversial issue for several decades. With the current evidence based mostly on Caucasians, testing for heritable thrombophilia does not help in treatment decision making of venous thrombosis and in fact, creates confusion and anxiety for patients and family.<sup>3</sup> This point of view has been described in part I consensus guideline on management of venous thromboembolism.<sup>1</sup> Indeed, considering that incidence of venous thrombosis in Asia is 15 to 20% of the levels reported in Western countries,<sup>2</sup> testing thrombophilia appears even less clinically significant. However, the hemophilia profile in Taiwan is very different from Western countries, as well recognized in part I consensus guideline.<sup>1</sup> In previous studies, Factor V Leiden or prothrombin mutations were rare and the most common heritable thrombophilia were protein S, protein C and antithrombin deficiency in Taiwan.<sup>4</sup> Such regional and ethnic difference should not be left unaccounted for in our guideline. To our knowledge, no prospective studies have been done for thrombophilia in

our country and the standard of care has been unestablished. In clinical practice, physicians treating pulmonary embolism continue to order thrombophilia testing, and consult hematologists for interpretations and suggestions although such testing is not recommended by the guideline. Different from Western countries, testing in Taiwan focuses on coagulation function assays (i.e. protein C, protein S and antithrombin). Such testing is frequently ordered at the inappropriate timing (e.g. first episode of thrombosis or during anticoagulant treatment) in my personal experience.

In our opinion, although universal thrombophilia screening is not helpful in clinical management, testing can be done in selected patients. Selective testing (e.g. unprovoked, recurrent, or unusual site venous thrombosis) is supported by literature.<sup>3</sup> In addition to heritable factors, screening of antiphospholipid syndrome may change the treatment of thrombosis patients.<sup>3,5</sup> In the future, we hope some suggestions of selective thrombophilia testing can be included in the guideline so screening by the right methods can be done for the right patients, at the right time for the benefits of optimal management in venous thrombosis.

### CONFLICT OF INTEREST

The author declare no conflict of interest.

### REFERENCES

1. Wang KL, Chu PH, Lee CH, et al. Management of venous thromboembolisms: part I. The consensus for deep vein thrombosis. *Acta Cardiol Sin* 2016;32:1-22.
2. Wang KL, Kao YT, Chang WT, et al. Management of venous thromboembolisms: part II. The consensus for pulmonary embolism and updates. *Acta Cardiol Sin* 2020;36:562-82.
3. Connors JM. Thrombophilia testing and venous thrombosis. *N Engl J Med* 2017;377:1177-87.

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<sup>1</sup>Division of Hematology-Oncology, Department of Internal Medicine, Chang Gung Memorial Hospital, at Linkou; <sup>2</sup>School of Medicine, Chang Gung University; <sup>3</sup>Center of Hemophilia and Coagulation Medicine, Chang Gung Memorial Hospital at Linkou, Taoyuan, Taiwan.

Corresponding author: Dr. Hung Chang, Division of Hematology-Oncology, Department of Internal Medicine, Chang Gung Memorial Hospital, No. 5, Fuxing Street, Guishan Dist., Taoyuan City 33305, Taiwan. Tel: 886-3-328-1200 ext. 2524; Fax: 886-3-328-6697; E-mail: horng@adm.cgmh.org.tw

4. Shen MC, Lin JS, Tsay W. High prevalence of antithrombin III, protein C and protein S deficiency, but no factor V Leiden mutation in venous thrombophilic Chinese patients in Taiwan. *Thromb Res* 1997;87:377-85.
5. Garcia D, Akl EA, Carr R, Kearon C. Antiphospholipid antibodies and the risk of recurrence after a first episode of venous thromboembolism: a systematic review. *Blood* 2013;122:817-24.

