Venous thromboembolism (VTE), i.e. deep venous thrombosis (DVT) and pulmonary embolism (PE), is a major health concern worldwide as it affects approximately 70-100 persons per 100,000 annually and results in significant morbidity and mortality (1). Important consequences of a venous thromboembolic event include a delayed hospital discharge or need for readmission, complications from short-term or long-term anticoagulation, recurrent thromboembolism, post-thrombotic syndrome and death. The research in this field has been focused mainly on the identification of possible risk factors for VTE and the identification of ‘high risk’ subgroups (2-4). On the other hand, studies evaluating potential risk factors for recurrence are more limited leaving a substantial grade of uncertainty on the optimal duration of treatment in particular in case of unprovoked events (5). In some populations, VTE may even be under-recognised and under-treated (6).

Among the various genetic and acquired VTE risk factors identified (7, 8), there is a growing interest towards the ABO blood groups, due to its profound influence on haemostasis exerted mostly through a direct effect on von Willebrand factor (VWF) and, consequently, factor (F)VIII plasma levels (9-11). Indeed, it is well known that VWF levels are approximately 25% higher in individuals who have blood groups other than O (12).

Among the several clinical studies searching for a possible role of ABO blood type on the risk of developing arterial or thrombotic thromboembolic adverse events, the most striking evidences regard a significant association between non-O blood type and unprovoked VTE (13), as observed also by a recent systematic review and meta-analysis of the literature including more than ten thousand VTE patients (14). Overall, the great majority of clinical studies agree to consider non-O blood group as one of the most important determinant of unprovoked VTE, being responsible for a moderate (about two-fold) increased risk (14-17). On the other hand, no study has analysed so far the association between ABO blood type and the risk of recurrent VTE following anticoagulant treatment, which represents on the most challenging issues in the management of these patients (18, 19).

In the current issue of Thrombosis and Haemostasis, Gandara et al. have conducted a prospective study on the influence of non-O blood type on the risk of recurrent VTE, using the population of the REVERSE study (20, 21). This study, which followed a cohort of 509 patients with unprovoked VTE off oral anticoagulation therapy for a mean of 4.19 years, found a statistically significant difference in the rate of recurrent VTE events according to the different ABO blood types. Indeed, during 1,552 patient years, 101 events occurred in 380 non-OO patients (6.5 events per 100 patient years; 95% confidence interval [CI] 5.3-7.7) compared to 14 events during 560 patient years of follow up in 129 OO patients (2.4 per 100 patient years; 95% CI 1.3-3.7). Of note, this difference persisted also after adjustment for possible confounding factors such as sex, FVIII and post-thrombotic syndrome (adjusted hazard ratio 2.0; 95% CI 1.2-3.8).

The results of this study are in keeping with those of another recent study (22), which assessed the role of ABO blood group on the presence of residual vein obstruction (RVO) a post-thrombotic condition that has been associated with an increased risk of VTE recurrence (23). Among the 268 patients with a first DVT enrolled, 126 (47%) developed RVO and, at a multivariate analysis, non-O blood group was significantly associated with an increased RVO risk (odds ratio [OR] 3.71), along with active malignancy (OR 5.54) and femoral involvement (OR 3.35) (22).

In conclusion, we believe this study represents another important step forward in the understanding the complex relationship between ABO blood group and haemostasis. These findings, if further replicated in larger studies, may candidate ABO blood group as one of the main predictors of VTE recurrence to consider when we establish the duration of oral anticoagulant therapy in a single patient.

Conflicts of interest
None declared.

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