The Official Journal of the Italian Society for the Study of Hemostasis and Thrombosis
SISET
Società Italiana per lo Studio dell'Emostasi e della Trombosi
Corso Nazionale SISET
Bergamo | 23-25 ottobre 2025

29TH NATIONAL CONFERENCE OF THE ITALIAN SOCIETY FOR THE STUDY OF HEMOSTASIS AND THROMBOSIS, 2025

ABSTRACT N. PO08

EFFICACY AND SAFETY OF THROMBOPROPHYLAXIS IN HOSPITALIZED HEMATOLOGICAL PATIENTS: A MONOCENTER RETROSPECTIVE STUDY.

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Background: Venous thromboembolism (VTE) is a frequent and clinically relevant complication in patients (pts.) with haematological diseases (HDs), with incidence varying according to disease and setting. However, no current risk-assessment models (RAMs) have been developed or validated for hospitalized haematological pts, leaving thromboprophylaxis decisions to clinical judgment, balancing thrombotic and hemorrhagic risks.

Aims and methods: The aims of this study were to evaluate the efficacy and safety of thromboprophylaxis in hospitalized hematological pts. affected by HDs and to assess the predictive performance for VTE of Padua Prediction Score (PPS), one of the most common RAM, in this setting. We used Improve Bleeding Score (IBS) to assess hemorrhagic risk. We retrospectively identified pts. who were admitted for the first time to our Hematology Department between January 1, 2016, and December 31, 2024. Patients with ongoing anticoagulant therapy at any dosage higher than prophylactic ones at admission were excluded. To minimise confounding, we performed a case-control matching to balance baseline characteristic between pts. who received prophylaxis and those who did not. Survival analyses were performed using Kaplan-Meier estimates, Cox proportional hazards regression, and Random Forest Survival modeling.

Results: A total of 683 pts. were included. At admission, 206 pts. (30%) were at high thrombotic risk (PPS ≥ 4), and 149 (22%) were at high bleeding risk (IBS ≥ 7). Prophylaxis was administered to 199 pts. (29%): 107 (54%) were PPS-high-risk and 92 (46%) PPS-low-risk. VTE occurred in 21 pts. (3.1%), mostly pulmonary embolism (33%) and catheter-related thrombosis (29%). Notably, 95% of VTE events (20/21) occurred in pts. not receiving prophylaxis. Acute leukemia was the most common diagnosis among VTE cases (16/21, 76%), with a 5.7% incidence in this subgroup.

Of 15 haemorrhagic events (HEs), 14 occurred in pts. without prophylaxis. In the IBS-high-risk group, HE incidence was comparable between those receiving and not receiving prophylaxis (5% vs. 8%).

PPS showed poor performance in predicting VTE, with area under the ROC curve (AUC) values of 0.56 at day 5 and <0.50 thereafter. Matched analysis based on PPS, IBS, and diagnosis showed that prophylaxis was associated with lower VTE risk, without an increase in bleeding.

In pts. not receiving prophylaxis, univariable Cox regression revealed a weak association between length of hospitalization and VTE (HR = 1.02, 95% CI 1.02–1.04). No significant associations were found for diagnosis (including acute leukemia), age, or platelet count at admission. To explore the complex interactions, we applied a Random Forest Survival model including the same variables. Feature importance values were as follows: acute leukemia (0.037), age (0.028), multiple myeloma (0.019), platelet count (-0.004), lymphoma (-0.016), and hospitalization length (-0.11). The out-of-bag (OOB) concordance index was 0.435. While the model's predictive performance was limited, it provided exploratory insight into the relative contribution of covariates to VTE risk.

Conclusion: In hospitalized patients affected by HDs, anticoagulant prophylaxis had significantly reduced the incidence of VTE without increasing major or CNS bleeding, even in high bleeding risk subgroups. PPS demonstrated poor predictive accuracy in this setting. These findings support the need to develop a dedicated RAM for haematology inpatients.

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