Abstract: **333**

# Validation of the VTE-BLEED score for predicting 30-day major bleeding in a real-world cohort of patients with pulmonary embolism

**Authors:**
K.-P. Kresoja [1], M. Ebner [1], N. Rogge [2], J. Reuter [2], G. Hasenfuss [2], B. Pieske [1], M. Lankeit [1], [1]Charite - Campus Virchow-Klinikum (CVK), Cardiology - Berlin - Germany, [2]Georg-August University, Clinic of Cardiology and Pneumology - Gottingen - Germany,

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**Background:** Assessment of bleeding risk in patients with pulmonary embolism (PE) is challenging. Recently, the VTE-BLEED score, which is based on six different weighted variables, was shown to predict major bleeding events in patients with venous thromboembolism (VTE) on stable anticoagulation with both warfarin and dabigatran.

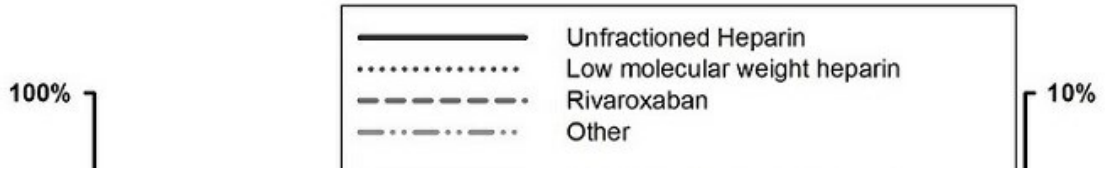
**Purpose:** We aimed to validate the VTE-BLEED score in a real-world cohort of PE patients.

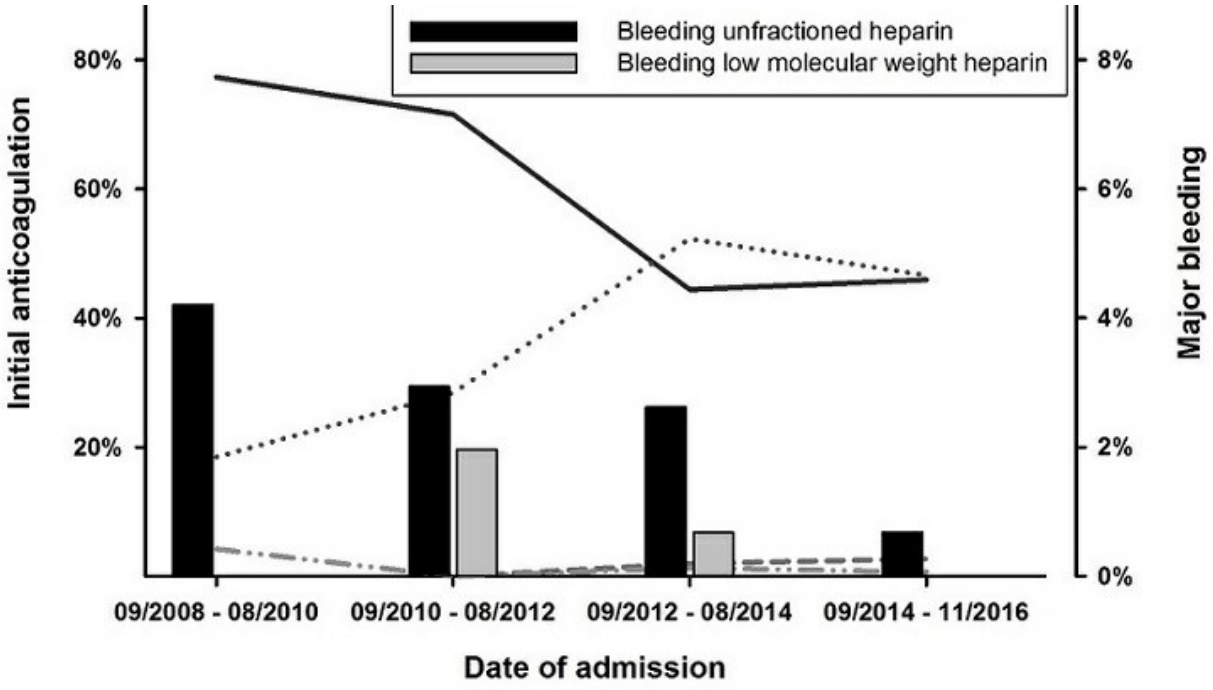
**Methods:** Consecutive PE patients prospectively included in the Pulmonary Embolism Registry Göttingen (PERGO) between September 2008 and November 2016 were eligible for the present analysis; patients included in the AMPLIFY or PEITHO study and patients treated with thrombolysis were excluded. The VTE-BLEED and the HAS-BLED score were calculated post-hoc; 30-day major bleeding was defined using the ISTH definition.

**Results:** Overall, 522 patients (median age, 69 [IQR, 56–78] years, 53% female) were included in the present analysis; major bleedings occurred in 16 (3.1%) patients. Patients classified as high-risk (>2 points) by the VTE-BLEED score (n=305 patients; 58.4%) had a major bleeding rate of 4.6% compared to 0.9% in 217 patients (41.6%) classified as low-risk (OR 5.2; 95% CI 1.1–23; sensitivity 88%, specificity 57%). ROC analysis yielded an AUC of 0.65 (95% CI 0.53–0.78) for the VTE-BLEED score which was larger compared to the HAS-BLED score (0.51; 95% CI 0.37–0.65). The HAS-BLED score failed to predict major bleeding events (3.2% in high-risk compared to 3.0% in low-risk patients, p=0.525; OR 1.1; 95% CI 0.4–3.0). Patients classified as high-risk by the VTE-BLEED score had a 6.7-fold (95% CI 1.6–29) increased risk of 30-day all-cause mortality.

Bleeding events were more frequently observed in patients initially treated with unfractioned heparin (UFH) with a decrease of bleeding events over time (Fig. 1); UFH treatment tended to be associated with an increased risk of major bleeding (OR 3.4; 95% CI 0.95–12).

**Conclusion:** A VTE-BLEED score >2 points was associated with a 5.2-fold increased risk for 30-day major bleeding in a large real-world cohort of PE patients while the HAS-BLED score failed to adequately identifying patients at risk. A less frequent use of UFH for initial anticoagulation might have contributed to the decrease of bleeding events over time.






Initial anticoagulation and bleeding