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Prediction Of Early Major Bleeding In Acute Pulmonary Embolism Patients: External Validation Of PE-SARD Score

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Prediction of early major bleeding in acute pulmonary embolism patients

external validation of the PE-SARD score

A. Vinci, MD, L.A. Cimini, MD, M.C. Vedovati, MD, P. Quadalti, MD, C. Becattini, MD, PhD

Internal, Vascular and Emergency Medicine - Stroke Unit, University of Perugia, Perugia, Italy

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Background

In patients with acute pulmonary embolism (PE), anticoagulant treatment is recommended to reduce mortality. Bleeding events are the main concern of antithrombotic therapy.

Several bleeding risk scores have been developed to assess bleeding risk in patients with venous thromboembolism receiving *long-term anticoagulation*.

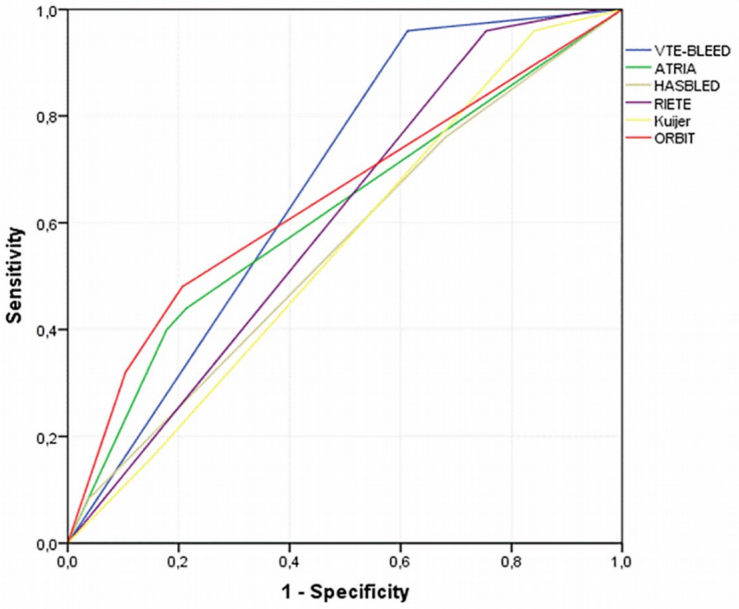


Figure 2

MC Vedovati et al, IJC 2019

Background

PE (Pulmonary Embolism) – **S** (syncope) **A** (anemia) **RD** (renal dysfunction)

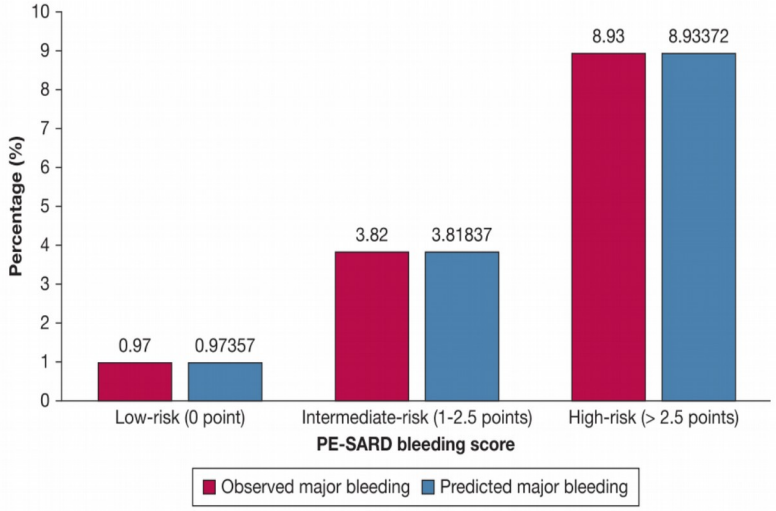
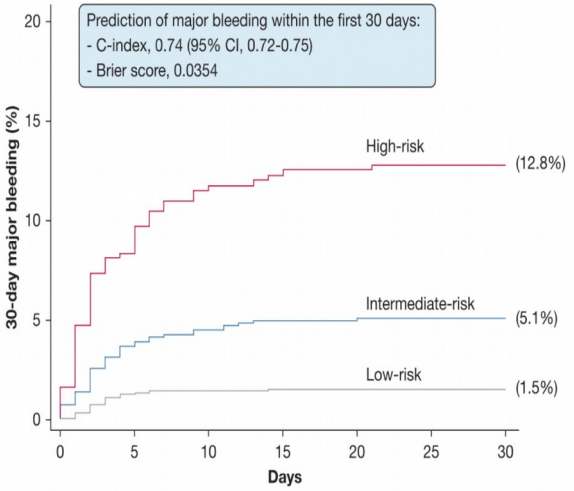


Figure 4 – *Cumulative incidence of 30-day major bleeding in acute PE patients according to the PE-SARD risk categories. PE-SARD risk staging increased with point totals: low-risk (0 point), intermediate-risk (1–2.5 points), or high-risk (> 2.5 points). PE-SARD = Pulmonary Embolism Syncope-Anemia-Renal Dysfunction.*



The PE-SARD score seemed efficient to estimate the risk of early major bleeding but further studies are required to externally validate this score.

R. Chopard et al, Chest. 2021

Methods

AIM OF THE STUDY

To provide the external validation of the PE-SARD score (Syncope, Anemia, Renal Dysfunction) to predict major bleedings at 30 day from acute PE.

STUDY DESIGN

Observational prospective cohort study including consecutive patients with acute symptomatic PE admitted to the Internal, Vascular and Emergency Medicine-Stroke Unit, University Hospital of Perugia.

Enrollment: May 2018 to December 2021.

Methods

OUTCOMES MEASURES

Study outcomes were assessed at 30 days from acute PE

- Primary Outcome: ability to predict major bleeding (MB)

Major bleeding was defined as overt bleeding that was associated with a decrease in the hemoglobin level of 2 g per deciliter or more, led to transfusion of 2 or more units of red cells, occurred in a critical site, or contributed to death (ISTH definition).

- Secondary Outcomes: fatal bleedings

Results

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Results

Demographic, Clinical Characteristics and Risk Factors Of Patients

RISK FACTORS	N	%
ACTIVE CANCER	86	23.6
PREVIOUS BLEEDING	18/272	6.6
DIABETES	52	14.3
CHF/COPD	79	21.7
RVD	162/328	49.4
TROPONIN	156/282	55.3
sPESI 0	85/356	23.9
RENAL FAILURE (CRCL<60 ML/MIN)	85/361	23.5
ANEMIA (HB <12.5 G/DL)	160	44.0
SYNCOPE	39	10.7
SEVERE RENAL FAILURE (CRCL<30)	17	4.9
ABSOLUTE CONTRAINDICATION TO AC	18/304	5.9
THROMBOLYTIC TREATMENT	18	4.5

Results

RISK FACTORS

Overall, 18 major bleedings occurred within 30 days in the 364 study patients (5%). Of which, two were fatal (0.6%).

Among the PE-SARD items, anemia resulted as a predictor of major bleeding, while renal failure and syncope were not.

	Overall population N=364	Major Bleeding N=18	No Major Bleeding N=346	p
Age, mean (SD)	69.7 (15.7)	70.4 (15.5)	69.6 (15.8)	0.82
Active cancer, n (%)	86 (23.6)	5 (27.8)	81 (23.4)	0.20
Previous bleeding, n (%)	18/272 (6.6)	3 (16.6)	15 (4.1)	0.05
Diabetes, n (%)	52 (14.3)	3 (16.6)	49 (13.4)	0.16
Renal failure (CrCl<60 ml/min), n (%)	85/361 (23.5)	4 (22.2)	83 (24.3)	0.84
Anemia (Hb <12.5 g/dl), n (%)	160 (44.0)	10 (55.6)	112 (32.8)	0.05
Syncope, n (%)	39 (10.7)	4 (22.2)	35 (10.3)	0.11
(CrCl<30), n (%)	(4.9)		(4.9)	
Absolute contraindication to AC, n (%)	18/304 (5.9)	5 (27.8)	13 (4.5)	<0.01
Thrombolytic treatment, n (%)	18 (4.5)	0	18 (5.2%)	-

Results

POPULATION

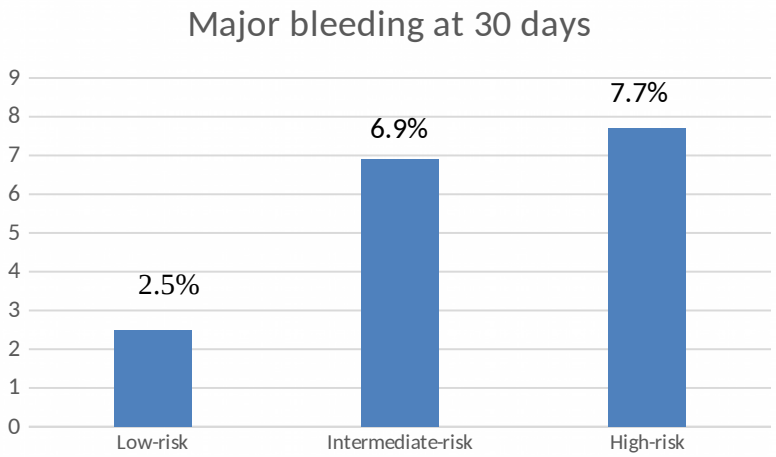
In this preliminary analysis patients were classified as:

PE-SARD low-risk (160, 43.9%)

PE-SARD intermediate-risk (160, 43.9%)

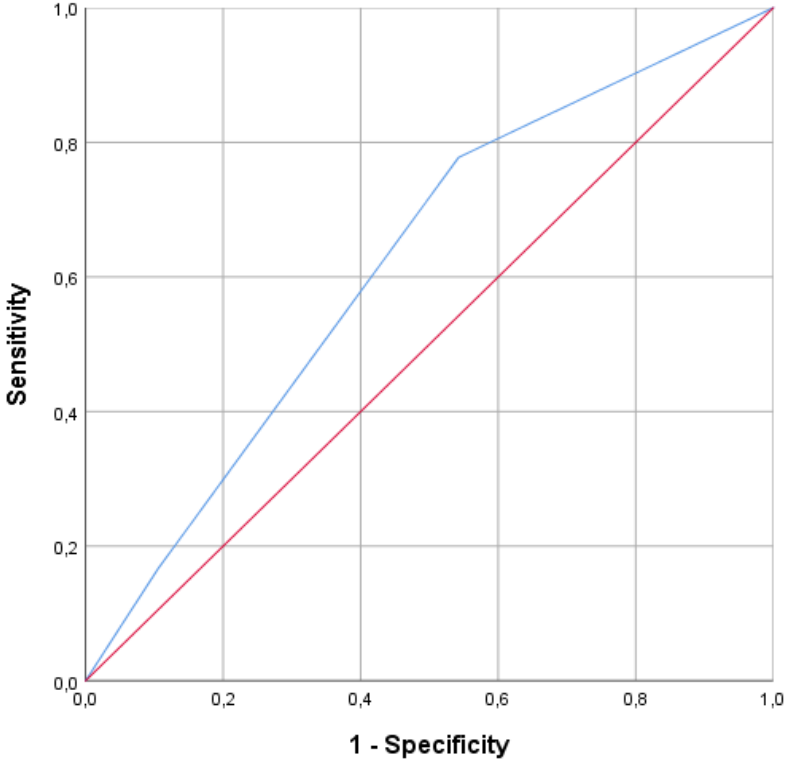
PE-SARD high risk (39, 10.4%).

Observed bleeding rates increased with the risk group:



Results

POPULATION



C-statistic (AUC) 0.622 (95% CI 0.497-0.746)

PE-SARD intermediate-high risk vs low

OR 2.95, 95% CI 0.95-9.15, p=0.061

Conclusions

Our preliminary analysis showed:

- ✓ patients in the acute phase of PE and classified as PE-SARD intermediate or high risk seemed to have a nearly 3 times higher risk of MB compared to those in the low risk
- ✓ limits: observational design, single centre
- ✓ the role of the PE-SARD score should be assessed in management studies.

Grazie per l'attenzione!

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