MPN-512

Inpatient Resource Utilization and Costs Associated With Hospitalization for Thromboembolic Events Among Patients With Polycythemia Vera

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Introduction

- Polycythemia vera (PV) is a chronic myeloproliferative neoplasm characterized primarily by clonal expansion of erythrocytes[1]
- Estimated annual incidence of PV in the United States (2002–2016) is 1.57 per 100,000 person-years,[2] with an estimated US prevalence of 44–57 per 100,000 people (2008–2010)[3]
- Patients with PV have an increased risk of developing thromboembolic events (TEs) compared with the general population, including venous and arterial thromboembolic events (VTEs/ATEs); TEs are a major cause of morbidity and mortality in these patients[4–6]
- Data are limited regarding healthcare costs and healthcare resource utilization (HCRU) associated with TE-related hospitalizations for patients with PV

Objective

- To describe demographics, clinical characteristics, HCRU, and costs for TE-related hospitalizations among patients with PV

Methods

Study Design and Data Source

- Study design: retrospective observational study among adult inpatients (age ≥18 years) with PV and TE discharged from US hospitals between January 1, 2017, and June 30, 2020
- Data source: PINC AI™ Healthcare Database (PHD), a large, geographically diverse hospital discharge database, which includes 25% of US inpatient discharges
- The analysis included a 2-year follow-up period after first hospitalization for TE during the study period (index visit) and a 90-day pre-index period; patients from hospitals without continuous data submission for the full study time frame were excluded

Study Variables

- Patient demographics and clinical characteristics were assessed at the index visit; comorbidities were assessed during the 90-day pre-index period
- HCRU and costs of TE-related hospitalizations, hospital length of stay (LOS), intensive care unit (ICU) admission and LOS, hospital readmission (30 days, 90 days, 1 year, and 2 years), and in-hospital mortality were assessed at index and during the 2-year follow-up period (post-index)

Statistical Analyses

- Between-group comparisons using unadjusted univariate statistics were performed for patients with ATEs, VTEs, or both at index and during follow-up
  - Between-group comparisons for categorical variables were evaluated using chi-square or Fisher tests
  - Two sample comparisons were evaluated using a t-test or Wilcoxon rank sum test for continuous variables

Results

Patients and Hospital Characteristics

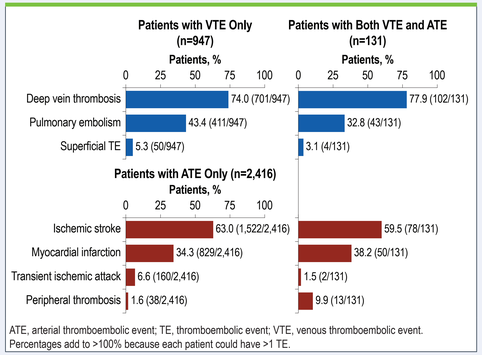
- Overall, 3,494 patients had 2 years of follow-up (**Table 1**); 69.1% of patients had ATEs at index hospitalization, 27.1% had VTEs, and 3.7% had both (**Figure 1**)

Table 1. Patient Demographics and Characteristics at Index in Patients With 2-Year Follow-Up

Parameter	VTE Only (n=947)	ATE Only (n=2,416)	Both (n=131)	Overall (N=3,494)
Mean (SD) age, y	70.0 (14.0)	71.0 (13.0)	71.7 (13.0)	70.7 (14.0)
Male, n (%)	515 (54.4)	1,458 (60.3)	75 (57.3)	2,048 (58.6)
Race, n (%)				
White	795 (83.9)	1,943 (80.4)	99 (75.6)	2,837 (81.2)
Black	69 (7.3)	207 (8.6)	11 (8.4)	287 (8.2)
Other	66 (7.0)	221 (9.1)	17 (13.0)	304 (8.7)
Unknown	17 (1.8)	45 (1.9)	4 (3.1)	66 (1.9)
Health insurance type, n (%)				
Medicare	683 (72.1)	1,756 (72.7)	99 (75.6)	2,538 (72.6)
Medicaid	67 (7.1)	189 (7.8)	11 (8.4)	267 (7.6)
Private insurance	162 (17.1)	366 (15.1)	12 (9.2)	540 (15.5)
Uninsured	19 (2.0)	66 (2.7)	4 (3.1)	89 (2.5)
Other/unknown	16 (1.7)	39 (1.6)	5 (3.8)	60 (1.7)
Mean (SD) Charlson Comorbidity Index score	2.4 (2.5)	3.4 (2.1)	3.8 (2.6)	3.2 (2.3)

ATE, arterial thromboembolic event; VTE, venous thromboembolic event.

Figure 1. Thromboembolic Events at Index Hospitalization

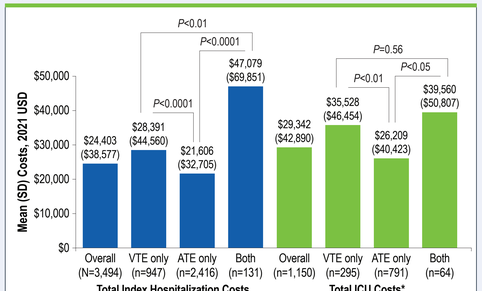


ATE, arterial thromboembolic event; TE, thromboembolic event; VTE, venous thromboembolic event.
Percentages add to >100% because each patient could have >1 TE.

HCRU and Costs at Index Visit

- Mean total hospitalization costs for the overall population were $24,403 during the index TE hospitalization (**Figure 2**); mean (SD) hospital LOS was 7 (9) days
  - This mean cost is higher than the average cost among a cohort of 376,858 medically ill (nonsurgical) patients with VTEs (range, $15,814–$20,282) in a prior study of PHD data[7]
  - Mean total hospitalization costs were highest among patients with both VTEs and ATEs, followed by those with VTEs alone (**Figure 2**)
- A third (n=1,150) of patients in the overall population were admitted to the ICU, with a mean ICU cost of $29,342 (**Figure 2**); mean (SD) ICU LOS was 5 (7) days
  - Mean ICU costs were significantly higher for those with VTEs (alone or with ATEs) vs those with ATEs alone (**Figure 2**)

Figure 2. Total Hospitalization and ICU Costs at Index Visit



ATE, arterial thromboembolic event; ICU, intensive care unit; USD, US dollars; VTE, venous thromboembolic event.
* Among patients with an ICU stay.

HCRU and Costs During Follow-Up

- Risk of TE-related hospital readmission increased with length of follow-up in the overall and subgroup populations (**Table 2**)

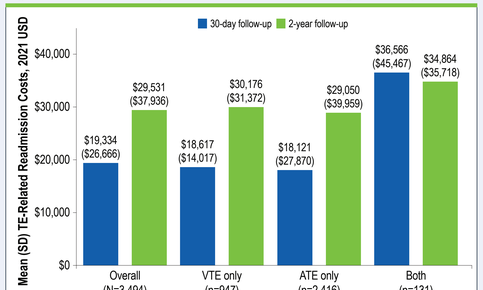
Table 2. TE-Related Hospital Readmission Risk During Follow-Up

	Readmission risk, n (%)			
Follow-up time	VTE Only (n=947)	ATE Only (n=2,416)	Both (n=131)	Overall (N=3,494)
30 days	57 (6.0)	152 (6.3)	13 (9.9)	222 (6.4)
90 days	86 (9.1)	246 (10.2)	17 (13.0)	349 (10.0)
1 year	125 (13.2)	402 (16.6)	21 (16.0)	548 (15.7)
2 years	163 (17.2)	509 (21.1)	26 (19.8)	698 (20.0)

ATE, arterial thromboembolic event; TE, thromboembolic event; VTE, venous thromboembolic event.

- Mean TE-related hospital readmission costs in the overall population increased over time (**Figure 3**)

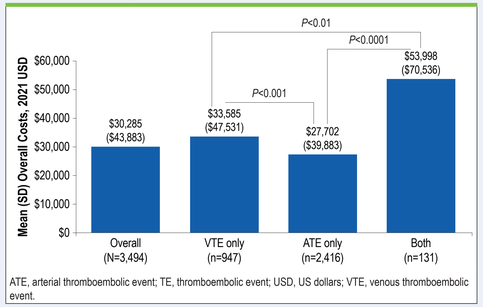
Figure 3. TE-Related Hospital Readmission Costs During Follow-Up



ATE, arterial thromboembolic event; TE, thromboembolic event; USD, US dollars; VTE, venous thromboembolic event.

- Total overall mean cost during index hospitalization and TE-related readmissions over a 2-year follow-up period was $30,285 (**Figure 4**)
  - Mean overall costs were highest among patients with both VTEs and ATEs at index, followed by those with VTEs only

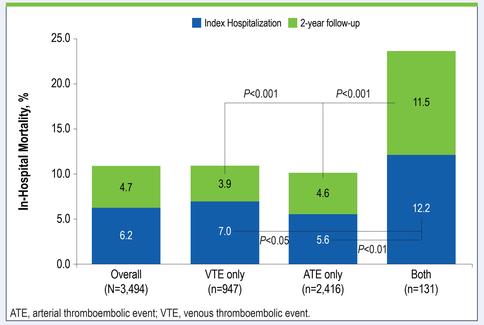
Figure 4. Total Combined Costs During Index Visit and TE-Related Readmissions During 2-Year Follow-Up



ATE, arterial thromboembolic event; TE, thromboembolic event; USD, US dollars; VTE, venous thromboembolic event.

- All-cause in-hospital mortality during index hospitalization was 6.2% for the overall population (12.2% in those with both VTEs and ATEs at index), with an additional mortality rate of 4.7% for the overall population within 2 years after index hospitalization (11.5% in those with both VTEs and ATEs at index; **Figure 5**)
  - The mortality rate was significantly higher among patients with both ATEs and VTEs at index vs those with ATEs or VTEs alone

Figure 5. Total All-Cause In-Hospital Mortality Rate at Index Visit and 2-Year Follow-Up



ATE, arterial thromboembolic event; VTE, venous thromboembolic event.

Conclusions

- **Among patients with PV, TE-related hospitalizations were associated with substantial HCRU, costs, and mortality**
- **The average cost of TE-related hospitalization for patients with PV was greater than costs associated with VTEs in medically ill patients (ie, nonsurgical patients) from a previous study[7]**
- **These findings highlight the complexity of this population and the importance of preventing TEs in the management of PV**

Disclosures

JY and EB are employees of and stockholders in Incyte Corporation.

JG, NR, and HB are employees of Premier Inc., a paid consultant of Incyte.

Acknowledgments

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References

1. Rumi E, Cazzola M. *Blood*. 2017;129(6):680-692.
2. Verstovsek S, et al. *Leuk Lymphoma*. 2022;63(3):694-702.
3. Mehta J, et al. *Leuk Lymphoma*. 2014;55(3):595-600.
4. Griesshammer M, et al. *Ann Hematol*. 2019;98(5):1071-1082.
5. Kroll MH, et al. *Blood Rev*. 2015;29(4):215-221.
6. Hultcrantz M, et al. *Ann Intern Med*. 2018;168(5):317-325.
7. Veeranki SP, et al. *Am J Cardiovasc Drugs*. 2021;21(4):443-452.

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