

Clinical Outcomes of Venous Thromboembolism in Patients with Hepatobiliary and Pancreatic Cancer

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BACKGROUND

- Venous thromboembolism (VTE) occurs commonly in hepatobiliary and pancreatic (HBP) cancers.
- While guidelines recommend low-molecular-weight heparin (LMWH) or direct oral anticoagulants (DOACs), these cancers were underrepresented in supporting trials; data on their clinical outcomes remain limited.

METHODS

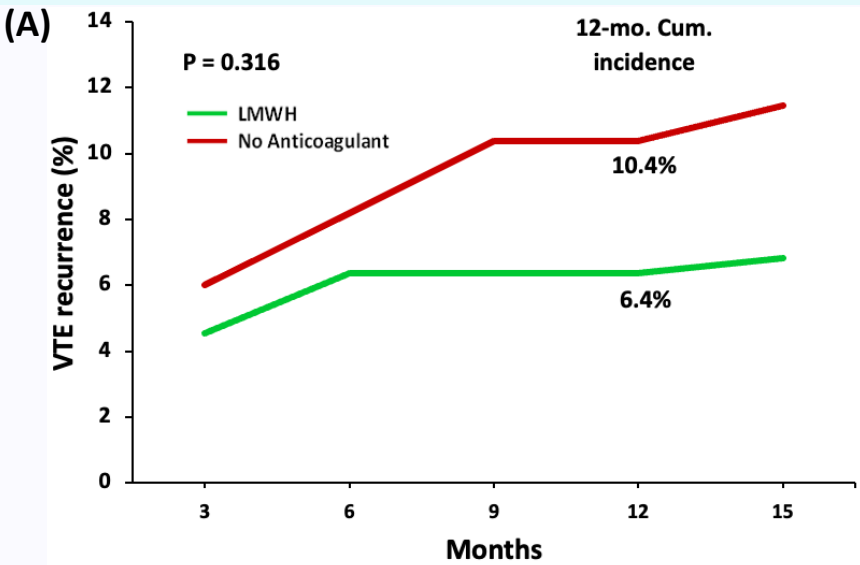
- **Retrospective cohort study** included adults diagnosed with **VTE and active hepatocellular carcinoma, cholangiocarcinoma, or pancreatic cancer** during 2013–2023. Patients were categorized into four treatment groups: **LMWH, warfarin, DOACs, and no anticoagulant**. **Primary outcome is the first VTE recurrence and secondary outcomes are major bleeding and mortality**.
- The **cumulative incidence of outcomes** was calculated at **3, 6, and 12 months**.
- Subgroup analysis of **cancer types** and **year of VTE diagnosis** was performed to evaluate effects on outcomes.

RESULTS

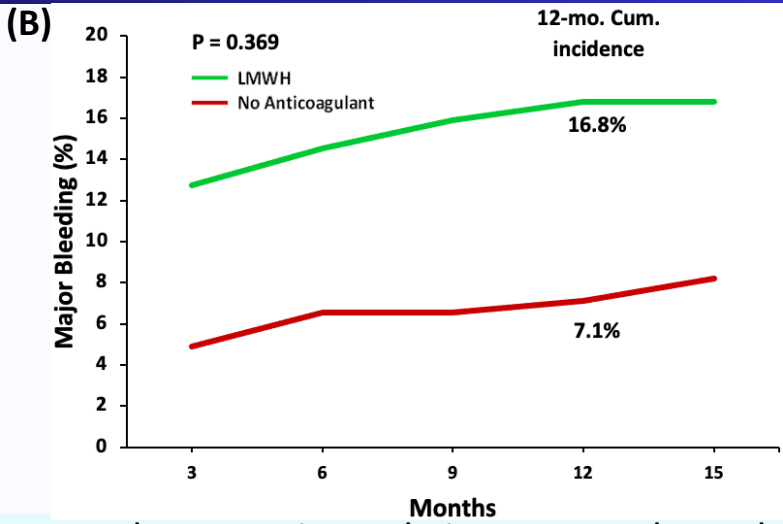
- Of 748 patients screened, 422 were eligible (LMWH, N=220; DOACs, N=8; warfarin, N=11; and no AC, N=183). The baseline characteristics are as follows.

Baseline Characteristics	Total, N=422 (100%)	LMWH, N=220 (52.1%)	Warfarin, N = 11 (2.6%)	DOACs, N = 8 (1.9%)	No AC, N = 183 (43.4%)
Age at VTE diagnosis, years, mean (SD)	63 (11)	64 (11)	59 (14)	68 (14)	63 (12)
Female, N (%)	148 (35.1)	94 (42.7)	4 (36.4)	4 (50)	46 (25.1)
Cancer type, N (%)					
Hepatocellular carcinoma	193 (45.7)	53 (24)	7 (63.6)	2 (25)	131 (71.6)
Cholangiocarcinoma	133 (31.5)	100 (45.5)	4 (36.4)	2 (25)	27 (14.7)
Pancreatic cancer	96 (22.7)	67 (30.5)	0 (0)	4 (50)	25 (13.7)
Cancer stage, N (%)					
0	1 (0.2)	1 (0.5)	0 (0)	0 (0)	0 (0)
1	27 (6.4)	15 (6.8)	0 (0)	1 (12.5)	11 (6)
2	44 (10.4)	18 (8.2)	3 (27.3)	0 (0)	23 (12.6)
3	116 (27.5)	33 (15)	4 (36.4)	1 (12.5)	78 (42.6)
4	234 (55.5)	153 (69.5)	4 (36.4)	6 (75)	71 (38.8)
VTE type					
DVT	100 (23.7)	75 (34.1)	4 (36.4)	4 (50)	17 (9.3)
PE (with or without DVT)	142 (33.6)	115 (52.3)	3 (27.3)	4 (50)	20 (10.9)
Catheter-associated VTE	2 (0.5)	1 (0.5)	0 (0)	0 (0)	1 (0.5)
IVC thrombosis	47 (11.1)	18 (8.2)	1 (9.1)	0 (0)	28 (15.3)
Splanchnic vein thrombosis	192 (45.5)	46 (20.9)	4 (36.4)	0 (0)	142 (77.6)
Cerebral venous sinus	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Retinal vein	2 (0.5)	1 (0.5)	0 (0)	0 (0)	1 (0.5)
Ovarian vein	1 (0.2)	1 (0.5)	0 (0)	0 (0)	0 (0)
Upper extremity	4 (0.9)	2 (0.9)	0 (0)	0 (0)	2 (1.1)

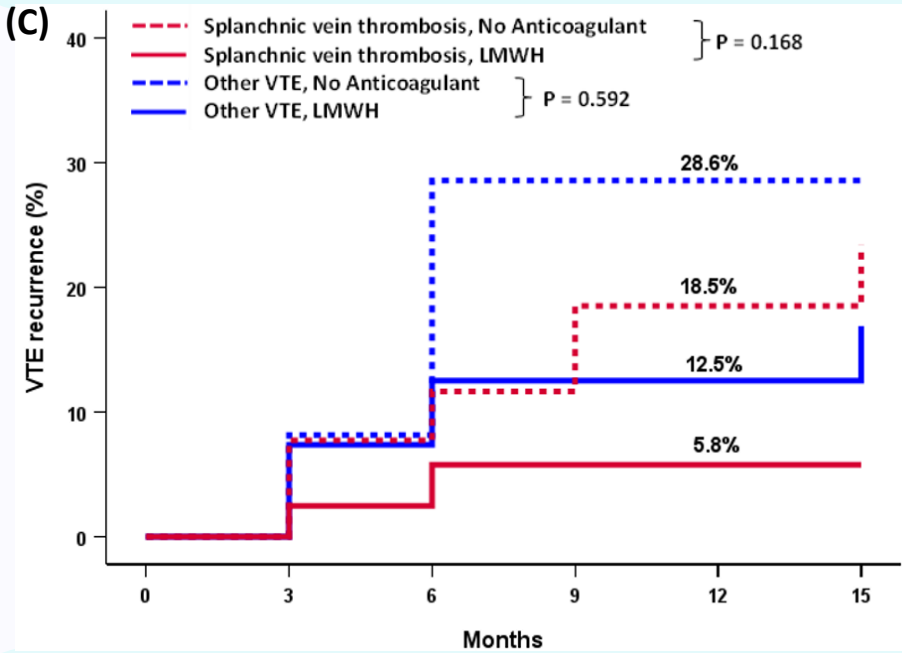
- The 6-month cumulative rates of outcomes were as follows: first VTE recurrence 7.3% (LMWH, 6.4%; DOACs, 12.5%; warfarin, 9.1%; no anticoagulation, 8.2%) (**Figure A**),



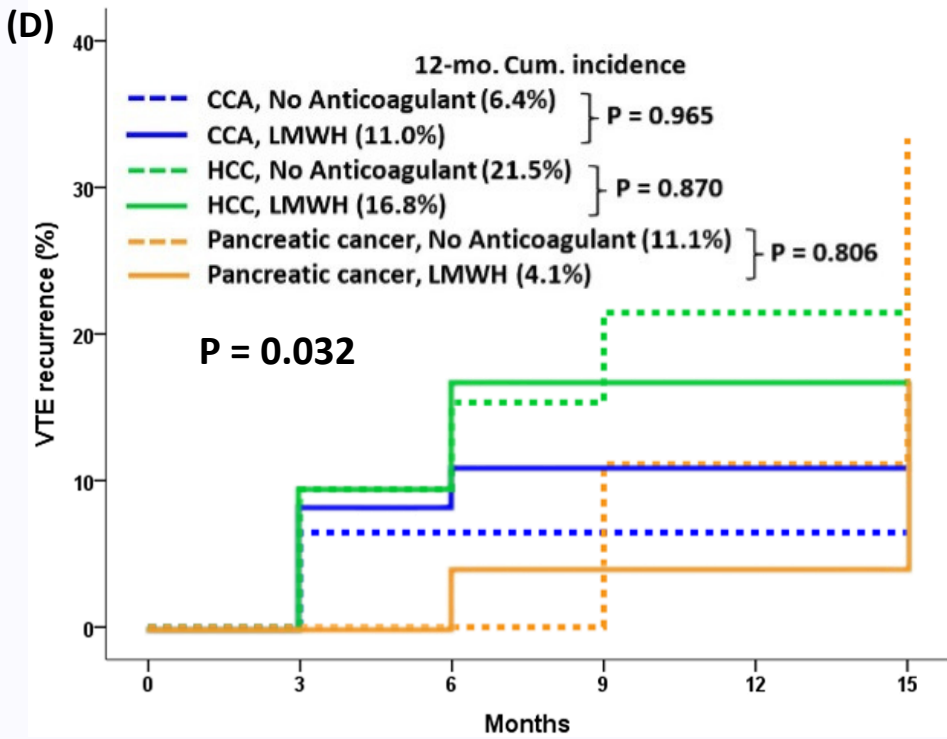
- **major bleeding 11.1%** (LMWH, 14.5%; DOACs, 12.5%; warfarin, 18.2%; no anticoagulation, 6.6%) (**Figure B**),
- **mortality 34.8%** (LMWH, 40.5%; DOACs, 12.5%; warfarin, 18.2%; no anticoagulation, 30.1%)



- Compared to no anticoagulation, LMWH showed no significant difference in VTE recurrence (HR 0.71, 95% CI 0.38–1.33) and major bleeding (HR 1.43, 95% CI 0.83–4.49).
- The **12-month cumulative incidence of VTE recurrence in splanchnic vein thrombosis is 5.8% in the LMWH group vs. 18.5% in the no anticoagulant group** (P=0.168), while in other VTE cases, it is **12.5% in the LMWH group vs. 28.6% in the no anticoagulant group** (P=0.592) (**Figure C**).



- Subgroup analysis showed a **significant difference in VTE recurrence in patients diagnosed between 2019 and 2023**.
- Overall, hepatocellular carcinoma and cholangiocarcinoma were associated with higher rates of VTE recurrence compared to pancreatic cancer (P = 0.032) (**Figure D**).



CONCLUSION

- Patients with HBP-cancer-associated VTE have substantial risks of recurrence and major bleeding.
- While LMWH was the most common type of anticoagulant prescribed, its benefits over no anticoagulation remain uncertain, highlighting the need for further research in these cancers

Reference :

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- 2.Lyman GH, Carrier M, Ay C, et al. American Society of Hematology 2021 guidelines for management of venous thromboembolism: prevention and treatment in patients with cancer. Blood Adv. 2021;5(4):927-974. Blood Adv [Internet]. 2021;5(7):1953. Available from: <http://dx.doi.org/10.1182/bloodadvances.2021004734>
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