INCIDENCE AND CHARACTERISTICS OF VENOUS THROMBOEMBOLISM IN CANCER PATIENTS RECEIVING IMMUNE CHECKPOINT INHIBITORS: A SYSTEMATIC REVIEW

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Introduction

Venous thromboembolism (VTE) is a recognized complication in cancer patients, with emerging evidence suggesting immune checkpoint inhibitors (ICIs) may influence this risk.

Aim

This study aims to provide comprehensive latest data on the incidence, risk factors, and outcomes of VTE in patients with active cancer receiving ICIs.

Methods

This is a systematic review assessing the risk of VTE in patients treated with ICIs.

We searched databases including Google Scholar, Embase, Cochrane, and Web of Science using search terms like immunotherapy, immune checkpoint inhibitors/blockade, venous thromboembolism (VTE), deep vein thrombosis (DVT), and pulmonary embolism (PE).

Five retrospective cohort studies and historically controlled trials published between 2021 and 2023 across France, Denmark, Canada, and the USA were included.

Study populations ranged from 481 to 2,854 patients treated primarily with ICIs including PD-1/PD-L1 inhibitors (e.g., nivolumab, pembrolizumab, atezolizumab, durvalumab) and CTLA-4 inhibitors.

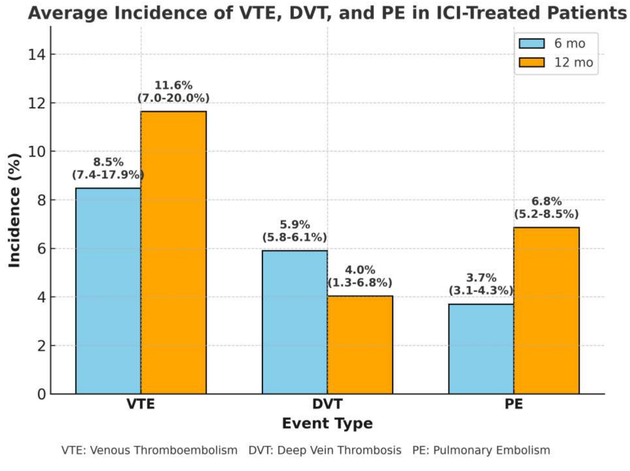
Results

VTE incidence varied between studies, ranging from 7.4% to 17.9% at 6 months.

The 12-month incidence, where reported, reached up to 20%.

Deep vein thrombosis (DVT) and pulmonary embolism (PE) were variably reported, with DVT incidence up to 6.1% and PE up to 4.3% at 6 months.

The studies reflected heterogeneity in cancer types, ICI regimens, and follow-up duration, limiting pooled analysis but suggesting a consistent trend of VTE as a clinically relevant complication in this population.



Conclusions

Cancer patients receiving ICIs exhibit a notable risk of VTE, underscoring the need for vigilant risk assessment and appropriate thromboprophylaxis strategies. Further prospective studies are warranted to delineate mechanisms and inform preventive approaches. In addition, individualized treatment strategies may be guided by future studies comparing the VTE risk associated with ICIs to that with conventional chemotherapy agents.