

Background

The Khorana score, a widely recognized point-based risk assessment tool used to estimate the risk of VTE in ambulatory cancer patients, takes into account five critical factors: cancer type (0-2 points), pre-chemo platelet count $\geq 350 \times 10^9/L$ (1 point), hemoglobin levels $< 10 \text{ g/dL}$ (1 point), pre-chemo leukocyte count $> 11 \times 10^9/L$ (1 point), and BMI $\geq 35 \text{ kg/m}^2$ (1 point). This scoring system spans from 0 to 6, with a score of ≥ 3 (Table 1) signifying a notable risk of VTE, characterized by a 6.7-7.1% incidence at a 2.5-month follow-up period.¹

Khorana Score	Risk Group	Rate of VTE at 2.5 months
≥ 3	High	6.7 - 7.1%
1 - 2	Intermediate	1.8 - 2.0%
0	Low	0.3 - 0.8%

Table 1. Khorana scores and their respective risk groups

Purpose

Our comprehensive institutional study aims to assess the practicality of employing the Khorana score for guiding the prescription of direct oral anticoagulants, injection anticoagulants, or antiplatelet therapies in high-risk patients who underwent treatment for stomach, lung, or ovarian cancer since the inception of 2023 at Tampa General Hospital.

Methods

Study Design: retrospective medical record study.

Data Collection: the use of Electronic Health Records (EHR) system through EPIC, granting access to treatment dates, laboratory results, vital signs, and outpatient pharmacy data.

Endpoint: record of the patients receiving an outpatient prescription for an anticoagulant (e.g. Eliquis, Xarelto, Warfarin, Lovenox) and/or antiplatelet (e.g. Aspirin, Plavix) medication upon calculation of a Khorana Score of ≥ 2 , which is considered the treatment threshold.²

Inclusion Criteria:

- A cancer diagnosis of stomach cancer (ICD-10: C16.0-16.9), lung cancer (ICD-10: C34.0-34.92), or ovarian cancer (ICD-10: C56.1-56.9)
- Most recent chemotherapy session between January-September 2023
- Laboratory and vital results available pre-initial chemotherapy session

Exclusion Criteria:

- Inconclusive lab and vital results prior to initial chemotherapy treatment
- Initial treatment at another facility
- The diagnoses in the inclusion criteria are secondary to another diagnosis and there is record of previous treatment

Results

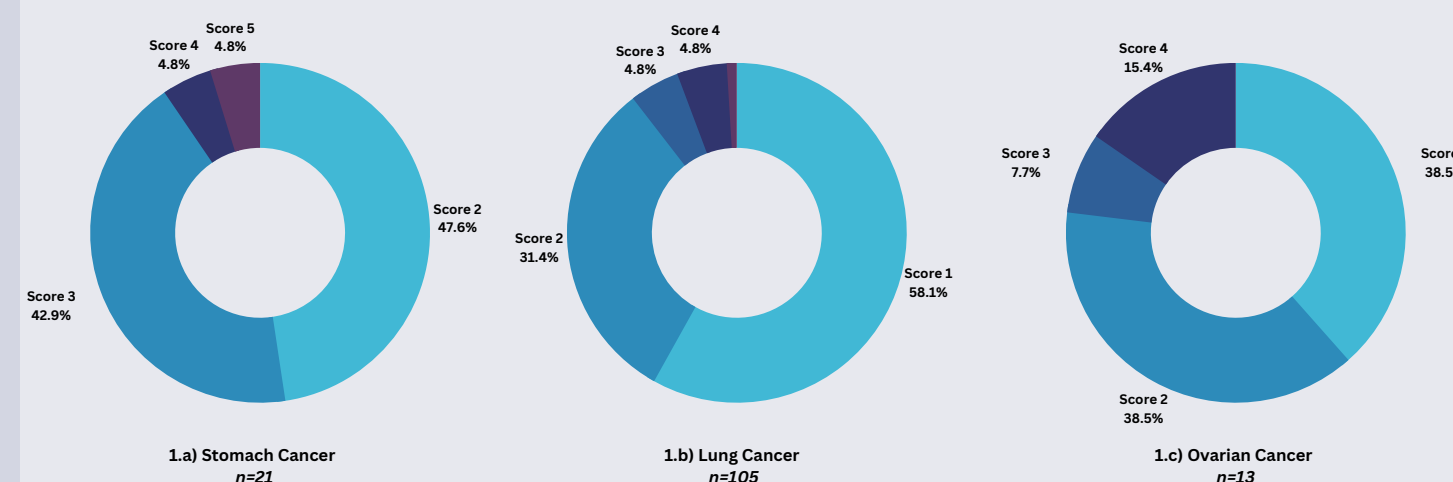


Figure 1. Khorana scores for each cancer cohort

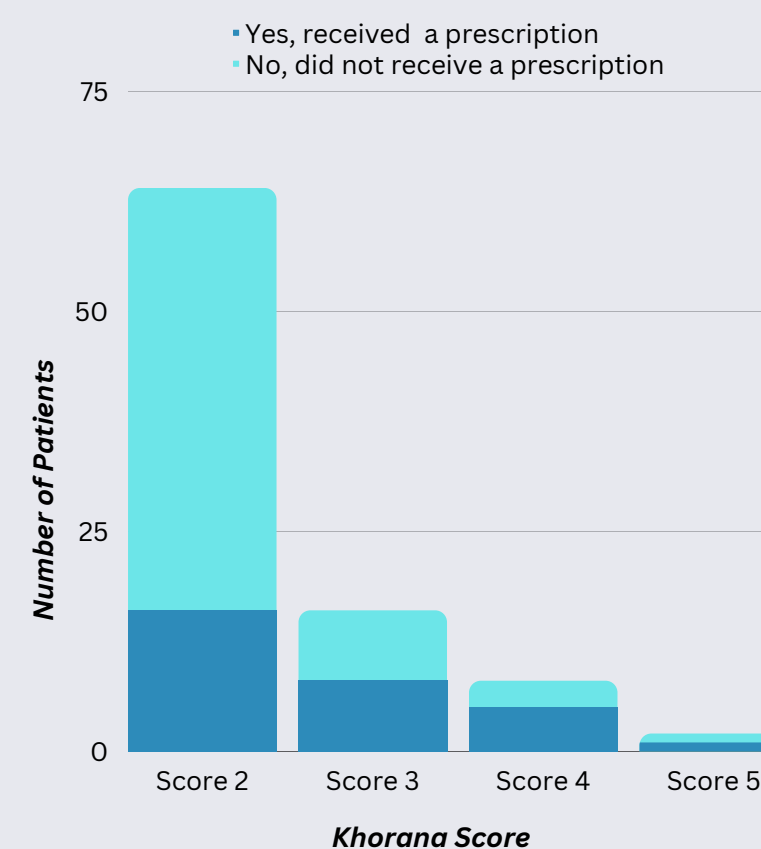


Figure 2. Analyzing the number of high-risk patients in all cohorts and whether or not they received a prescription for an anticoagulant or antiplatelet medication

Discussion

- A total of 139 patients from all three cancer cohorts met the inclusion criteria.
- 100%, 41%, and 62% of the stomach, lung, and ovarian cancer cohort respectively have a Khorana Score of ≥ 2 and are recommended to initiate treatment
- Of the 90 patients with a Khorana Score of ≥ 2 , only 30 patients were initiated on anticoagulant/antiplatelet treatment after chemotherapy

Conclusion

Cancer and antineoplastic therapy are frequently complicated by the development of venous thromboembolism (VTE). Cancer patients on active therapy are at greatest risk for development of VTE. To reduce the burden and consequences of VTE, it is therefore important to identify a population of cancer patients at highest risk for VTE that would benefit from thromboprophylaxis.³ The scope of this study was constrained both in terms of the patient cohort size and the range of cancer types examined, which precludes a definitive assessment of the benefits of thromboprophylaxis. Consequently, the current data does not support the immediate establishment of an institution-wide thromboprophylaxis protocol for high-risk cancer patients. However, our study can serve as a valuable foundation for future investigations into the necessity of implementing a standardized protocol aimed at further mitigating the risk of VTE in cancer patients actively receiving chemotherapy.

Disclosures

The investigators of this study have no conflicts of interest to disclose.

References

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