

Thromboembolic disease in COVID-19 cancer patients: impact on overall survival and prognostic factors

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Background

An increased risk of thromboembolic events (TE) is associated with COVID-19 infection. However, information available about thrombosis risk in COVID-19 cancer patients is still scarce.

Methods

We retrospectively evaluated 219 cancer patients who were diagnosed of COVID-19 infection in our institution during the first pandemic wave.

The study population was monitored for 12 months, and TE were recorded. A descriptive analysis of baseline and follow-up clinical characteristics was performed. Potential prognostic factors for developing TE and overall survival (OS) were analysed using logistic and cox proportional regression models.

Results

- Overall TE rate was **13%**.
- TE were reported **during COVID-19 hospitalization (52%)** and during **follow-up (48%)**.
- **Median time** from COVID-19 diagnosis to TE was **12 weeks**
- Reported TE included pulmonary embolism (68%), deep vein thrombosis (16%), and other arterial thrombosis (16%).

Risk factors for TE:

- Only ferritin > 296 ng/mL remained significant after multivariate analysis.
- Neither being on any specific oncological treatment nor prior anticoagulant therapy influenced TE risk.

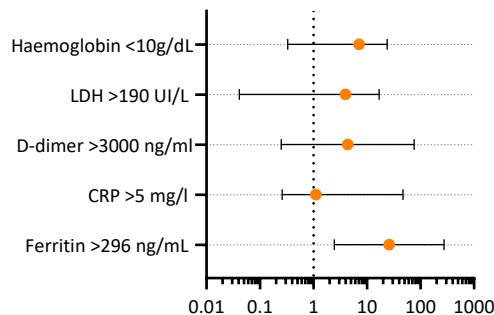


Figure 1. Forest plot with the odds ratios (CI 95%) for risk factors associated with TE. Note: the factors that were found to be significant ($P<0.05$) in univariate analysis were entered into a multivariate analysis.

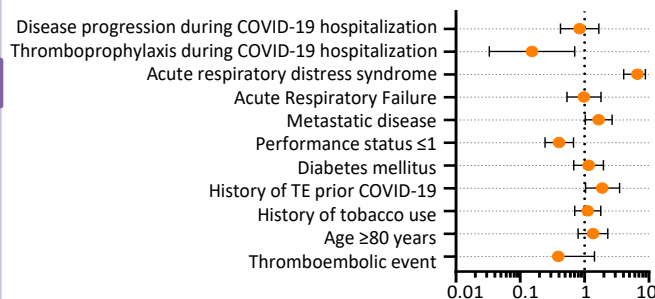


Figure 2. Forest plot based on the results of multivariate analysis of the factors associated with mortality (CI 95%). Note: the factors that were found to be significant ($P<0.05$) in univariate analysis were entered into a multivariate cox regression models.

Overall survival analysis

- Pooled **mortality rate** among patients with TE was **52%**, and **41%** among patients **without TE**.
- No differences in OS were found between patients who developed TE and those who did not. Though, **diagnosis of TE during COVID-19 hospitalization conferred poorer survival** (12 weeks vs 52 weeks those patients who were diagnosed during follow up, $p=0.02$).
- **Being hospitalized for COVID-19 infection was a prognostic factor for worse survival** (27 vs 52 weeks, $p=0.03$).
- Only **acute respiratory distress syndrome, metastatic disease and history of TE before COVID-19 diagnosis** remained significant predictors for **poorer survival** after multivariate analysis; **good performance status and thromboprophylaxis** during COVID-19 hospitalization resulted as predictive factors for **better survival outcomes**.

Conclusions

TE in COVID-19 cancer patients can lead to fatal outcomes. **Thrombotic risk may persist after acute infection; therefore, routine active surveillance should be considered.** Larger studies are needed for developing a risk prediction tool for TE in COVID-19 cancer patients.

Disclosure and contact information

There are no conflicts of interest to declare
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