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Could anticoagulant use prior to infection with COVID-19 decrease mortality?

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BACKGROUND

- The novel coronavirus (COVID-19) has resulted in substantial morbidity and mortality worldwide
- Infection with COVID-19 has been associated with coagulopathy and inflammation
- This prothrombotic state has been identified in the literature as an indicator of poor prognosis
- Those who receive anticoagulation therapy may have better outcomes
- Due to this prothrombotic state, patients who are currently receiving anticoagulation therapy for other indications prior to infection with COVID-19 may have better outcomes
- Little real world data exists evaluating the outcomes of patients with confirmed COVID-19 infection who are receiving long term anticoagulation therapy prior to infection compared to those who were not

PURPOSE

To evaluate the outcome of patients with COVID-19 infection who were receiving long term anticoagulation therapy prior to infection compared to those who were not receiving anticoagulation therapy.

METHODS

- **Study design:** observational, retrospective case-control study (March 15, 2020 to May 15, 2020)
- **Primary endpoint:** Patients who were deceased by May 20, 2020
- Patients were matched by:
  - Age
  - Sex
  - Body mass index (BMI)
  - Diabetes mellitus (DM)
  - Hypertension (HTN)
  - Estimated glomerular filtration rate (eGFR) by chronic kidney disease (CKD) state
- **Statistical analysis:** chi square, z-score
- **Inclusion criteria:**
  - Hospitalized at from March 15, 2020 to May 20, 2020
  - Confirmed COVID-19 infection via polymerase chain reaction (PCR)
- **Exclusion criteria:**
  - Patients with confirmed COVID-19 infection who were still hospitalized as of May 20, 2020

RESULTS

Table 1: Demographic characteristics of patients with COVID-19

No. of patients on anticoagulation prior to admission / Total no. of patients with COVID-19 eligible for analysis		22/400
Age	30-60	4 (18%)
	>60	18 (82%)
Gender	Males	15 (68%)
	Females	7 (32%)
Comorbidities	Hypertension	20 (95%)
	CKD	14 (67%)
	Diabetes Mellitus	13 (57%)
	BMI> 30 kg/m^2	8 (36%)

Table 2: Non-parametric analysis of patients on prior anticoagulation vs. match control*

	Survived	Expired
Patients on anticoagulation	17	5
Control	97	52

- With the six variables, we were able to match with 149 controls
- Of the 22 patients, five expired due to COVID-19 infection compared to 52 patients from the 149-patient matched cohort [z-score 1.13, p = 0.26; odds ratio (OR) 1.82; 95% confidence interval [CI], 0.69-4.71].

***Statistical significance is defined if the null hypothesis could be rejected at <0.05.**

DISCUSSION

- Few patients were on long term anticoagulation therapy prior to infection with COVID-19
- When the six variables were matched with controls, anticoagulation use prior to infection with COVD-19 did not appear to confer a mortality benefit
- The findings of our study are consistent with the variable literature that exists that therapeutic anticoagulation in patients with COVID-19 will likely not influence outcomes in those who develop coagulopathy
- Patients who are receiving anticoagulant therapy for underlying conditions should continue on this therapy if they become infected with COVID-19
- Our study is limited to a small patient sample size and accuracy of accurate medication reconciliations performed during a pandemic

CONCLUSION

While prior long term anticoagulation use does not appear to have a protective effect in patients with COVID-19 infection, these results require confirmation with prospective, longer term trials.

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DISCLOSURES

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