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Evaluation of incidence of thrombosis and bleeding in medical floor COVID-19 patients at a community hospital

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BACKGROUND

- Individuals affected by Coronavirus Disease 2019 (COVID-19) are more prone to coagulopathy, a complication associated with disseminated intravascular coagulation (DIC) and a poor overall prognosis^{1,2}
- Incidence of venous thromboembolism (VTE) in COVID-19 increases with certain medical conditions such as obesity, heart disease (ex. atrial fibrillation), history of myocardial infarction or stroke, and thrombophilia. Other risk factors associated with worse outcomes are elevated D-dimer and increased inflammatory markers such as, interleukin-6 (IL-6), lactate dehydrogenase (LDH), and ferritin levels^{3,4,5}
- Due to an alarming trend in stroke and death among this patient population, anticoagulation therapy is recommended in all patients who do not have a contraindication^{6,7}
- Early during the pandemic, societal guidelines recommended using full dose anticoagulation in critically ill patients without a diagnosed indication. Later on, due to an increased incidence of bleeding, intermediate dosing (ex. enoxaparin 30-40mg twice a day) was recommended^{1,7}
- Risk of VTE and major bleeding in COVID-19 patients is still unknown
- The intent of this project is to evaluate anticoagulation dosing used over a six-month period and determine incidence of VTE and bleeding in COVID-19 positive patients at Baptist Hospital of Miami

OBJECTIVES

- Describe the incidence of thrombosis, bleeding events, and 30-day readmission rates in adult COVID-19 patients

METHODS

- Study design:**
 - Single-center, retrospective chart review of patients admitted to Baptist Hospital of Miami due to COVID-19 from 03/01/2020 to 08/01/2020
 - Subjects were divided into two groups
 - Early group: hospitalized March-May
 - Late group: hospitalized June-Aug
- Inclusion criteria:**
 - Individuals ≥ 18 years old
 - COVID-positive test
 - Admission to the general medical floor or step-down
- Exclusion criteria:**
 - Pregnancy
 - Intensive Care Unit (ICU) admission
- Primary outcome:** Incidence of thrombosis
 - Defined as deep vein thrombosis (DVT), pulmonary embolism (PE), acute ischemic stroke (AIS), or myocardial infarction (MI)
- Primary safety outcome:** Incidence of bleeding
 - Defined as bleeding from any site
- Secondary outcome:** 30-day readmission

RESULTS

Baseline Characteristics (N=200)

	Early COVID (n=100)	Late COVID (n=100)
Mean Age (yrs)	61	64
Gender, %		
Female	52	54
Race, %		
White Hispanic	74	81
White	9	8
Black	12	7
Other	5	4
Mean BMI (Kg/m²)	29.8	29.4
Mobility, %		
No limitation	64	73
Slightly limited	28	13
Very limited	8	14
Smoking, %		
Smoker	1	4
Former smoker	15	15
Never	84	81
Comorbidities, %		
Cancer	9	6
History of VTE	3	3
Atrial fib.	5	8
Heart failure	4	9
AIS or MI	6	6
Hypertension	54	60
Diabetes	28	29
Hyperlipidemia	31	17

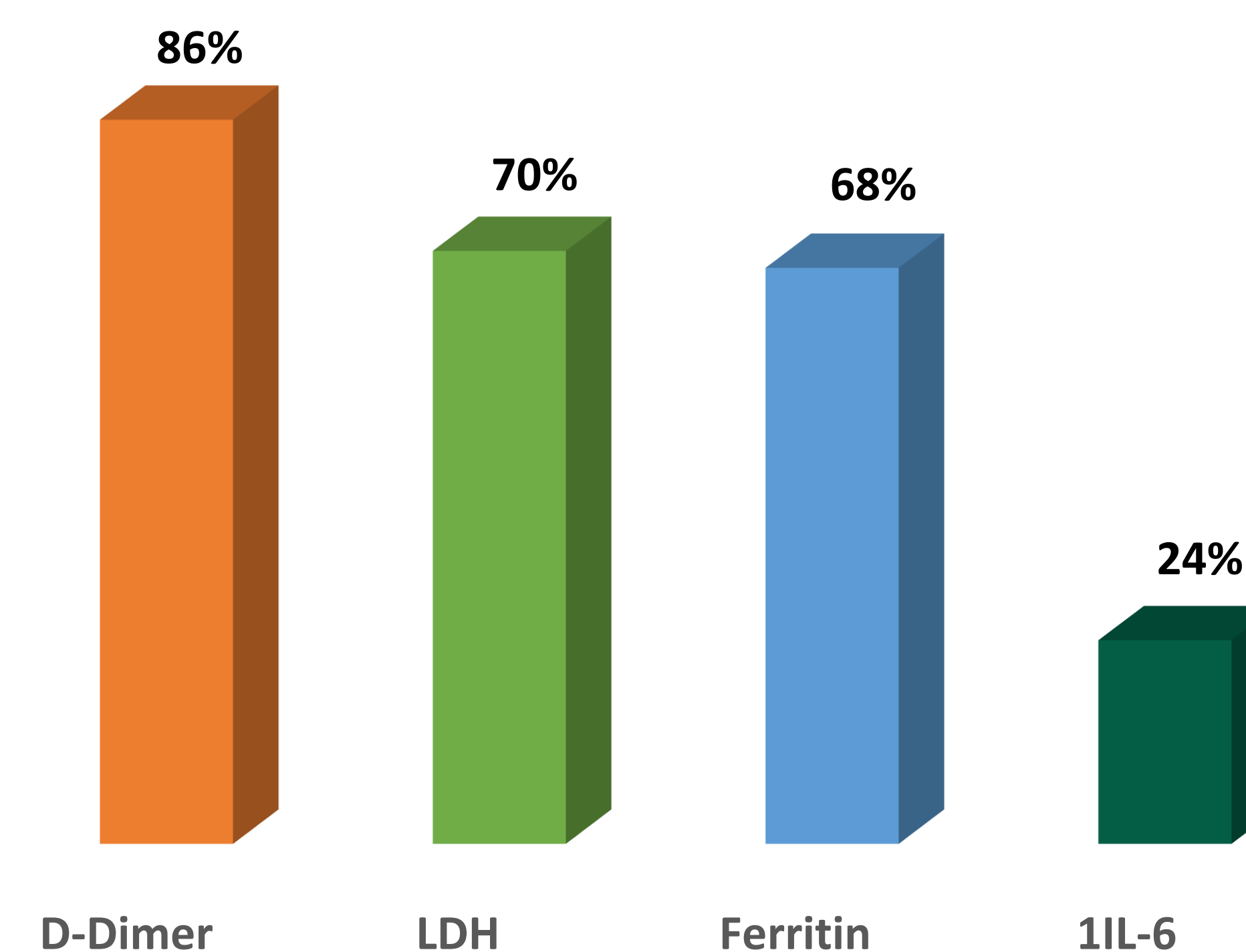
Primary Outcome (N=200)

	Early COVID (n=100)	Late COVID (n=100)
Thrombosis, %	0	3
Bleeding, %	0	1
30-day readmission, %	6	9
• PE, %	1	1
• DVT, %	0	1
• MI, %	0	0
• AIS, %	0	0

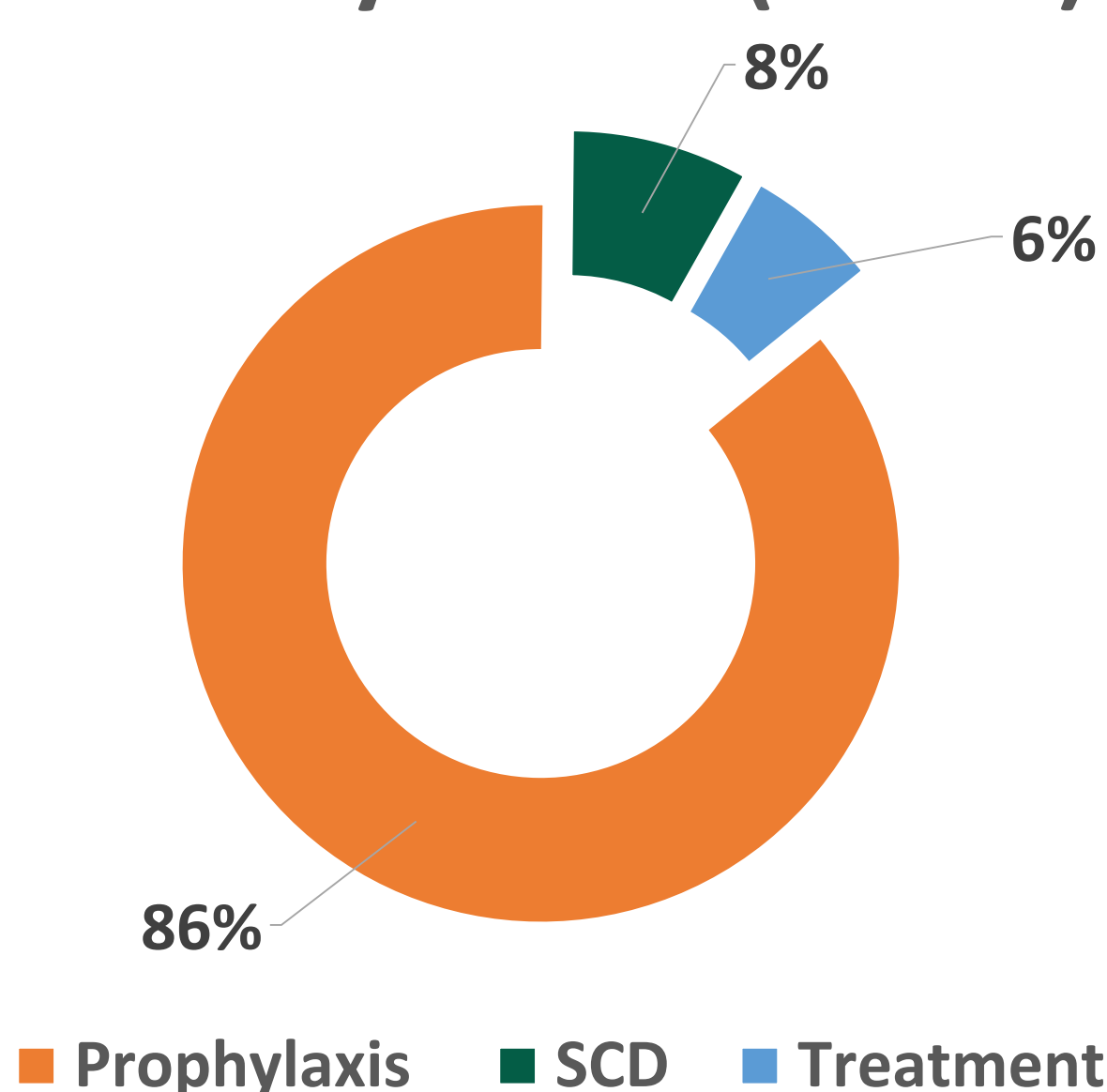
COVID Treatment (N=200)

	Early COVID (n=100)	Late COVID (n=100)
Hydroxychloroquine, %	76	1
Tocilizumab, %	0	0
Remdesivir, %	10	63
Convalescent Plasma, %	0	67
Steroids, %	34	91

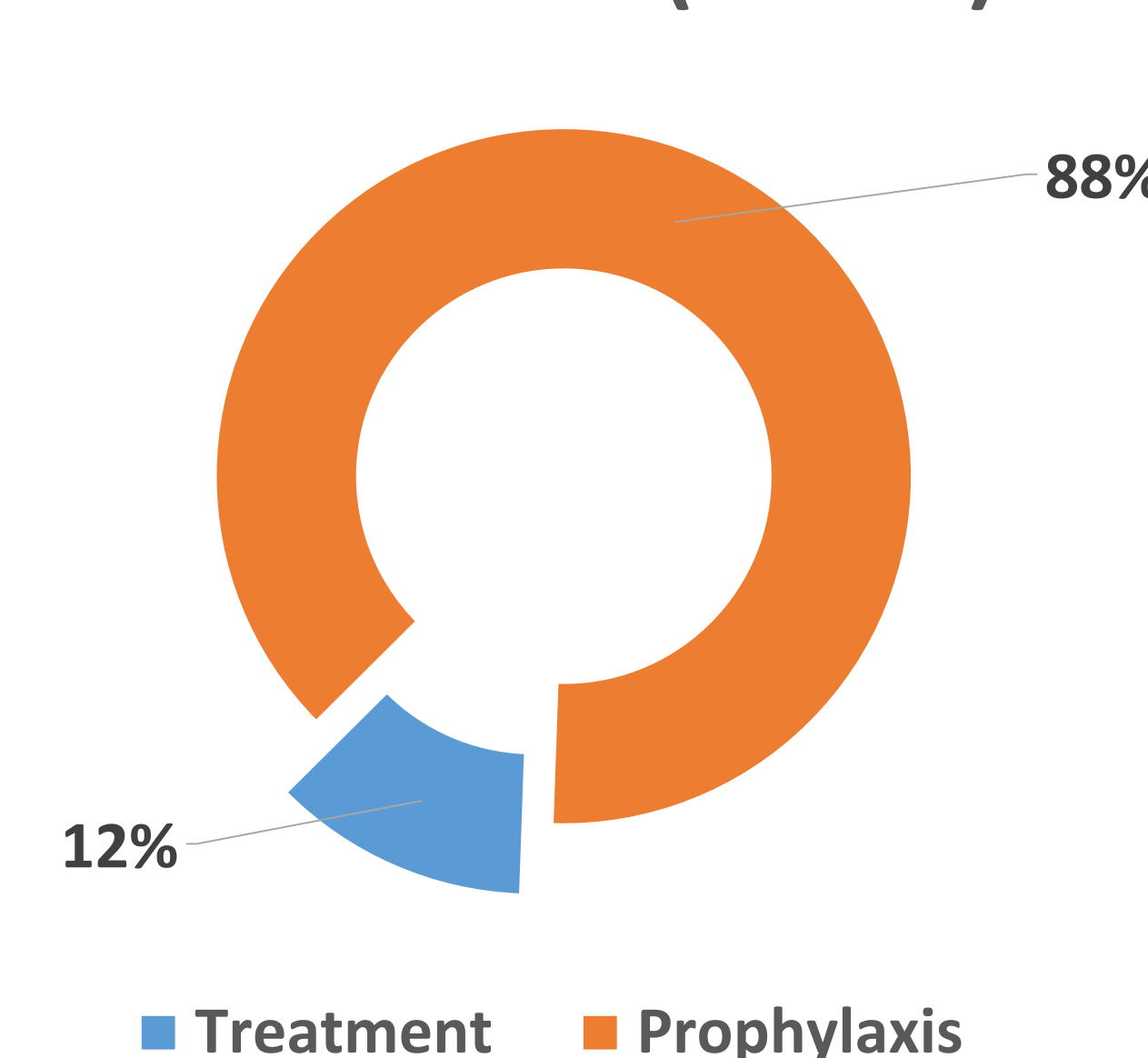
Elevated Inflammatory Biomarkers (N=200)



Anticoagulation Dosing in Early COVID (n=100)



Anticoagulation Dosing in Late COVID (n=100)



CONCLUSION

- Baseline characteristics were similar between early and late groups
- COVID treatment strategies differed significantly between the two arms
- Anticoagulation dosing was similar between early and late groups
 - Majority of patients received prophylactic dosing. 18 patients received treatment dosing due to a diagnosed indication. No patients received intermediate dosing or treatment dosing without a diagnosed indication
- 3 patients in the late COVID group had a thrombotic event (2 PE, 1DVT)
- 1 patient who received prophylactic dosing had mild hemoptysis not requiring pharmacologic interventions
- 15 patients were readmitted within 30 days (2 PE, 1DVT)
- Prophylactic dosing did not increase risk of thrombosis or bleeding even though most patients had elevated D-dimer and inflammatory markers suggestive of VTE risk

LIMITATIONS

- Small sample size
- Retrospective study design
- Documentation in the medical records was not complete/thorough
- Several pertinent laboratory values were not monitored, especially early during the pandemic
- Only assessed readmission within Baptist Hospital of Miami

DISCUSSION

- This is a retrospective chart review comparing prescribing patterns of anticoagulation between early and late COVID groups
- Anticoagulation at prophylactic doses does not seem to increase risk of thrombosis or bleeding significantly in patients admitted to medical floors at Baptist Hospital of Miami
- Moreover, 30-day readmissions were mostly due to causes other than thrombosis and bleeding in the majority of our patients

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DISCLOSURES

- All authors of this presentation have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have direct or indirect interest in the subject matter of this presentation