
Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

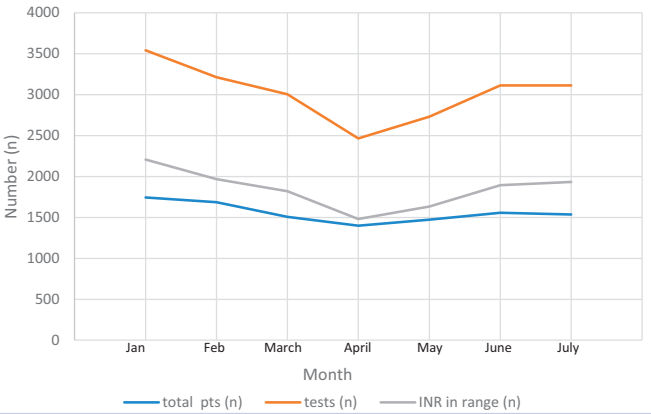


**Fig.** Trends in visits, testing and time in therapeutic range (TTR) January 2020 to July 2020.

**Author Disclosures: K. Sourial:** Nothing to disclose; **T. Kearns:** Nothing to disclose; **T. Carman:** Nothing to disclose.

## Sulodexide in the Treatment of Early Stages of COVID-19

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**Background:** Patients with novel coronavirus disease-2019 (COVID-19), present a systemic inflammatory response with vascular endothelial damage and an increased risk of thromboembolic complications. Sulodexide can help restore venous and arterial endothelial glycocalyx integrity lost in certain chronic diseases, which can downregulate or limit the response to inflammatory molecules. It has an antithrombotic effect that could help reduce the incidence of thromboembolic complications which can be beneficial in these patients. We hypothesize that sulodexide, instituted in the early symptomatic stages of COVID-19, would improve the clinical outcomes with decreased hospital admission, decrease morbidity, and mortality.

**Methods:** Prospectively, patients were recruited with early clinical symptoms of COVID-19 (shortness of breath, fever, headache, cough, etc), and screened for inclusion criteria, age 40 to 80 years, male or female, and risk of developing a severe presentation of the disease >50% given by the IMSS (Mexican Social Security Institute) COVID-19 health risk calculator. Exclusion criteria were negative COVID-19 test result, chronic use of steroid medication or anticoagulation. Patients were randomized for allocation into control group to received placebo + standard of care, or study group to receive an oral dose of 500 lipase releasing units sulodexide two times per day. The treatment lasted 21 days. A follow-up visit was scheduled via electronic media at 7 days intervals or as needed. Primary end points variables to measure were, days of hospital care, the need for supplemental oxygen, D-dimer, and C-reactive protein serum levels, and mortality rate.

**Results:** A total of 243 patients were randomly assigned to the sulodexide group (n = 124) or the placebo group (n = 119). The demographics and clinical characteristics of the patients were similar in both groups. The symptoms that presented a significant improvement in the sulodexide group were body aches at week 2 ($P = .002$), malaise/fatigue at week 3 ($P = .003$), and shortness of breath at week 2 ($P = .001$) and week3 ($P = .031$). A total of 37 patients (29%) developed respiratory symptoms that warrant the need for in-home oxygen support in the sulodexide group versus 50 (42%) in the control group ($P = .047$). A total of 56 patients (24%) required hospital admission, 22 (17.7%) in the sulodexide group and 35 (29.4%) in the placebo group ($P = .032$), with an average length of stay of 6.4 days in the sulodexide group versus 7.8 control group ($P = .211$). A total of 3 patients (2.4%) died in the sulodexide group versus 7 (5.8%) in the placebo group ($P = .121$).

**Conclusions:** Our findings supported the effectiveness of sulodexide in the prevention of a severe clinical progression of COVID-19 when used in the early symptomatic stages compare to the standard of care, reducing the need for hospital care of these patients.

**Author Disclosures: A. Gonzalez-Ochoa:** Nothing to disclose; **A. Hernandez:** Nothing to disclose; **J. Raffetto:** Nothing to disclose.

## Higher Incidence of Deep Venous Thrombosis and Pulmonary Emboli Among Coronavirus Disease 2019 (COVID-19) Positive Patients: A Multisite Healthcare System Experience

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**Background:** To assess the incidence of deep venous thrombosis (DVT) and pulmonary emboli (PE) of coronavirus disease 2019 (COVID-19)-positive patients in comparison with a cohort of hospitalized patients evaluated before the pandemic.

**Methods:** Retrospective review of prospectively collected data on COVID-19 positive patients, who were hospitalized across the multisite health care system from March 11, 2020, after the World Health Organization's declaration of the pandemic to July 27, 2020. The end point is the incidence of DVT and PE in hospitalized COVID-19-positive patients compared with the rate of DVT and PE in hospitalized patients across the health care system from January 1, 2019, to December 31, 2019.

**Results:** There were 8675 patients with COVID-19 infection and 427 (4.9%) were hospitalized across our multisite health care system. Mean age was 59.4 ± 17.2 years and 184 (43.1%) were female. There were 46 (10.8%) with DVT/PE diagnosis confirmed with the appropriate imaging studies including venous ultrasound examination of the extremities and/or computed tomography of the chest. In contrast, the DVT/PE incidence in the entire year of 2019 was 0.03% ($P < .0001$). Heart and respiratory rates were higher in the DVT/PE cohort ($P = .022$). The white blood cell count was higher ($P = .011$), hemoglobin was lower ($P = .006$) and platelet count was higher ($P = .044$) in the DVT/PE cohort. PTT ($P = .001$), INR ($P = .008$) and D-dimers ($P < .001$) were also higher in the DVT/PE cohort. Pro B-type natriuretic peptide ($P = .021$), IL-6 ($P = .002$) and procalcitonin ($P = .047$) were also higher in the DVT/PE cohort.

**Conclusions:** There is a significant higher risk of DVT/PE in COVID-19 hospitalized patients compares with those hospitalized patients before the pandemic. Although our inpatient protocols have been adjusting to this higher risk for DVT/PE, the percentages continue to remain high. A closer look at each one of the inflammatory and procoagulant factors will be necessary to assess how to best serve this high-risk patient population for thrombotic events.

**Author Disclosures: C. Franco Mesa:** Nothing to disclose; **Y. Erben:** Nothing to disclose; **M. Lin:** Nothing to disclose; **A. Meltzer:** Nothing to disclose; **M. Greenway:** Nothing to disclose; **O. Hamid:** Nothing to disclose; **Z. Devcic:** Nothing to disclose; **B. Toskich:** Nothing to disclose; **H. Farres:** Nothing to disclose; **M. Kalra:** Nothing to disclose; **T. Bower:** Nothing to disclose; **R. De Martino:** Nothing to disclose; **J. Siegel:** Nothing to disclose; **A. Hakaim:** Nothing to disclose; **D. Sanghavi:** Nothing to disclose; **Y. Li:** Nothing to disclose; **C. Rivera:** Nothing to disclose; **P. Moreno-Franco:** Nothing to disclose; **J. Huang:** Nothing to disclose; **J. Meschia:** Nothing to disclose.

## COVID-19 and the Vascular Laboratory: Decreasing Exposure Risk

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**Background:** During times of medical normalcy (nonpandemic), overtesting by the vascular laboratory, while never excusable, can be tolerated. When the performance of a test may have dire consequences, illness or death either of the person performing the examination or the patient receiving the examination, more stringent criteria need to be instituted. Early in the COVID-19 crisis, a policy of mandatory review of