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.

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Study Objectives: Many COVID-19 testing algorithms in the United States focus on the key symptoms (KS) of fever, cough and shortness of breath. We sought to understand the likelihood key symptoms would be the presenting chief complaint (CC) of a COVID+ patient.

Our objective was to understand the presenting CC of COVID positive patients with regards to KS versus similar symptoms (SS).

Methods: The study population included patients presenting to 19 EDs in the upper Midwest ranging from critical access sites to larger quaternary care hospitals from 2/1-5/4/2020. All facilities utilize a common electronic health record (Epic systems, Verona, Wisconsin) with structured data entry for CCs. Comparisons between the CCs for COVID-19 and COVID+ patients were performed using two-sided Chi-squared tests. KS are defined as the presence of shortness of breath, fever, or cough. SS are complaints similar to KS, such as flu-like symptoms, respiratory distress, or COVID-19 inquiries. All other complaints are categorized as Not Immediately KS.

Results: A total of 7682 patients presented to the ED during the study time frame. Out of these patients, 166 (2.16%) tested positive for COVID-19. Overall, COVID+ patients were significantly more likely to present with the KS compared to COVID-19 patients: COVID+: 68.7%, COVID-19: 54.0%, p < .001, as well as symptoms similar to these KS (COVID+: 7.8%, COVID-19: 2.5%, p < .001). A patient presenting with KS/similar symptoms tests positive for COVID are 2.5 times higher than the odds that a patient without these symptoms tests positive (OR = 2.50, 95% CI: 1.74 - 3.59, p < .001). Table 1 provides a summary of the COVID+ cohort grouped by CC. COVID+ women tend to present more frequently without KS. Furthermore, 41-50 year old COVID+ patients most frequently report CC similar symptoms.

Conclusion: Patients presenting with KS are much more likely to test positive for COVID-19 than patients without KS, which is congruent with recommendations for testing in most algorithms. However, 23.5% of patients testing positive for COVID-19 had non-KS as the CC; in particular, patients in their 40s tended to present with non-KS CCs. Conservative algorithms must understand the variety of CC presentations associated with COVID-19 infection, as missed diagnosis will pose exposure risk to staff and other community members. Future research focused on the likelihood of patients having COVID-19 who present without a CC of fever, cough, or shortness of breath is recommended. This has the potential to further refine testing algorithms, preserve limited resources, and minimize potential exposure.

Table 1. Cohort Characteristics (COVID+ Patients)

| Key Symptoms | Similar Symptoms | Not Immediately KS |
|--------------|-----------------|-------------------|
| KS (N=114)   | N=13            | N=39              |
| Age- Median (IQR) | 56 [36-68] | 47 [39-49] | 56 [30-70] | 0.98 |
| Age Group- n (%) | 18 or Younger (3%) | 0 (0%) | 3 (8%) | 0.28 |
|       | 19-30 (20%)    | 2 (15%) | 7 (18%) | >0.99 |
|       | 31-40 (13%)    | 2 (15%) | 4 (10%) | 0.85 |
|       | 41-50 (15%)    | 6 (46%) | 4 (10%) | 0.012 |
|       | 51-60 (19%)    | 0 (0%) | 6 (15%) | 0.37 |
| Older than 60 | 44 (39%) | 3 (23%) | 15 (39%) | 0.59 |
| Sex- n (%) | Male (64 (56%)) | 8 (62%) | 13 (33%) | 0.037 |

Note: P-values generated from ANOVA (age) and Fisher's Exact tests

Study Objectives: Ventricular assist devices (VADs) are being used more frequently in pediatric patients with advanced heart failure. Outpatient management of children with VAD implantations also is becoming more common. However, no study exists that describes Emergency Department (ED) care of these patients. This study aims to identify patient characteristics and outcomes of children with VADs presenting to the ED.

Methods: This is a retrospective descriptive study of all patients ages 0 to 18 years in the Stanford Children’s outpatient VAD program who presented to our pediatric ED between 2010 (year of first discharged VAD patient) and 2020. Patient data was abstracted from electronic medical records. Adverse events were defined according to the Advanced Cardiac Therapies Improving Outcomes Network (ACTION) registry guidelines. Adverse events were included if they occurred during the ED visit or associated hospitalization.

Results: A total of 30 children with VAD implantations were transitioned to outpatient care in the study period. All were implanted with continuous flow devices. Among children in the outpatient VAD program, 20/30 (66.7%) had 38 visits to our pediatric ED over 141.5 patient-months. Median age at time of ED visit was 12.5 (range 7.3-17.4) years. Median number of ED visits per discharged child was 1 (range 0-4). The most common complaints on arrival to ED included fever (7/38; 18.4%), abdominal pain or vomiting (7/38; 18.4%), headache (6/38; 15.8%), bleeding from any site (4/38; 10.5%), chest pain (4/38; 10.5%), device malfunction or alarm (5/38; 7.9%), dizziness (3/38; 7.9%), and dyspnea (3/38; 7.9%). Adverse events occurred during 14/38 (36.8%) ED visits or associated hospitalizations, including 3/38 (7.9%) instances each of hypertension, major infection, or right heart failure, 2/38 (5.3%) instances of major bleeding, and 1/38 (2.6%) instances each of hemolysis, renal dysfunction, or device malfunction. Hospital admission occurred in 27/38 (71.1%) of visits, including 10/27 (37.0%) to a cardiac intensive care unit. No patients died during an ED visit or associated hospitalization. Mortality of all children in the outpatient VAD program during the study period was 3/30 (10.0%) including one patient on destination therapy, one with hemorrhagic stroke, and one with multi-system organ failure due to cardiogenic shock.

Conclusion: In a single outpatient pediatric VAD program, patients had high utilization of ED care and had a high rate of hospital admission following ED presentation. The youngest patient transitioned to outpatient VAD care was 7 years old. Fever, abdominal pain/vomiting, and headache were the most frequent initial complaints. The most common adverse events were hypertension, major infection, and right heart failure.

Study Objectives: Acute pulmonary embolism (APE) is a potentially life threatening condition and a leading cause of mortality worldwide. Due to the urgency of establishing a diagnosis which can alter life-saving management, the concern for APE leads to excessive imaging with CT pulmonary angiography particularly in the emergency department. Neutrophil-to-Lymphocyte ratio (NLR) and Platelet-to-Lymphocyte ratio (PLR) have recently been evaluated as predictive markers for deep venous thrombosis (DVT), however, few studies have explored their application for the evaluation of acute pulmonary embolism. Given that a complete blood count (CBC) is a routinely ordered, easily accessible and inexpensive evaluation of prothrombotic and inflammatory status, it is of great significance to explore the aforementioned ratios as an alternative diagnostic tool when evaluating for APE. The ultimate goal is to gain insight into alternative diagnostic markers for APE and subsequently reduce the number of unnecessary CT Angiograms performed.

Methods: This study evaluated the role of the PLR and NLR in those patients with unprovoked APE, and tested the hypothesis that a “negative” NLR of ≤ 3.4 is effective to rule out APE, while a “positive” PLR of ≥ 260 is effective to rule in APE. In this retrospective analysis, 494 patient encounters from 2012 to 2019 from a community-based hospital setting with confirmed APE were evaluated, and 106 were enrolled in the study. Inclusion criteria included confirmed APE since 2012. Exclusion criteria included surgery within the last 35 days, APE due to discontinuation of anticoagulation, current pregnancy, active chemotherapy or radiation therapy, confirmed DVT during admission, sepsis, or other known hypercoagulable state. APEs were confirmed via CTA chest (98.1%) or V/Q scan (1.9%).