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Title

Diagnostic Phenotypes of Post-Acute Sequelae Following COVID-19 Leveraging the American Family Cohort, PRIME Registry

Priority 1 (Research Category)

COVID-19

Presenters

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Abstract

Context: Post-COVID chronic conditions have been a significant concern in the primary care setting and merit additional examination for treatment. Primary care remains one of the first-line treatment settings for patients at-risk or with manifest post-acute sequelae. The American Family Cohort (AFC) serves as a registry for further examination of post-COVID chronic conditions.

Objective: We sought to identify post-COVID condition diagnostic phenotypes among patients diagnosed with COVID-19 across the United States.

Study Design and Analysis: This was a retrospective cohort study to classify COVID-19 patients based on 17 conditions that are indicative of post-acute sequelae. These clinical conditions included a range of organ systems (e.g. heart, mental health, respiratory, etc.) as identified by clinical experts who treat and manage long COVID. Latent class analysis was used to profile and classify COVID-19 patients based on incident conditions that are indicative of potential post-acute sequelae 6 months following initial diagnosis in the primary care setting.

Setting and population studied: The American Family Cohort is an outpatient clinical registry of primary care practices that include electronic health record data beginning January 1, 2017 to March 31, 2022. The study cohort included 15,452 COVID-19 cases from March 12, 2020 – October 1, 2021.

Intervention: Diagnosis of patients with COVID-19 in the primary care setting with International Classification of Diseases, 10th Revision (ICD-10) diagnosis code.

Outcome Measures: Primary outcome was the classification of distinct diagnostic phenotypes of COVID-19 patients with evidence of post-acute sequelae.

Results: Patients with COVID-19 could be classified into four distinct sub-groups. Classes included a highly comorbid group with fatigue (25.5%), heart conditions (13.9%), sleep disturbances (10.4%), and breathing difficulties (41.2%) with a 0.032 membership probability. A secondary comorbid group included COVID-19 patients with sleep disturbances (24.1%), fatigue (12.0%), mental health (11.0%),

cognition (11.6%), and type 2 diabetes (12.0%) with membership probability of 0.036. A low morbidity group had a membership probability of 0.83.

Conclusion: Our findings demonstrate several distinct diagnostic phenotypes for potential post-acute sequelae among COVID-19 patients. Further examination of these patient groups may aid timely and responsive treatment and referrals in the primary care setting.