Pharmacotherapy from pre-COVID to post-COVID: longitudinal trends and predictive indicators for long COVID symptoms

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Abstract

Aim: Approximately 10% of all COVID-19 cases experience persistent symptoms after the acute infection phase, a condition known as long COVID or post-acute sequelae of COVID-19. Approved prevention and treatment options for long COVID are currently lacking. Given the heterogeneous nature of long COVID, a personalized medicine approach is essential for effective disease management. This study aimed to describe trends in pharmacotherapy from pre-COVID to post-COVID phases to gain insights into COVID-19 treatment strategies and assess whether pre-COVID pharmacotherapy can predict long COVID symptoms as a health status indicator. Methods: In the Precision Medicine for more Oxygen (P4O2) – COVID-19 study, 95 long COVID patients were comprehensively evaluated through post-COVID outpatient clinics and study visits. The study focused on descriptive analysis of the pharmacotherapy patterns across different phases: pre-COVID-19, acute COVID, and post-COVID. Furthermore, associations between pre-COVID medication and long COVID outcomes were analyzed with regression analyses. Results: We observed peaks in the use of certain medications during the acute infection phase, including corticosteroids and antithrombotic agents, with a decrease in the use of renin-angiotensin inhibitors. Consistent high use of alimentary tract medications was noted across all phases. Notably, pre-COVID respiratory medications were associated with fatigue symptoms, while antiinfectives and cardiovascular drugs were linked to fewer persisting long COVID symptom categories. Conclusion: Our findings provide longitudinal descriptive pharmacotherapy insights and suggest that medication history can be a valuable health status indicator in characterizing patients for personalized disease management strategies, addressing the heterogeneous nature of long COVID.

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