


Chapter 1

Comprehensive Analysis of the COVID-19 Pandemic's Impact on the Prevalence of Acute Coronary Syndrome (ACS)

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ABSTRACT

The COVID-19 pandemic has caused havoc in the world's healthcare systems. Acute coronary syndrome (ACS) admission rates have varied considerably during the pandemic. Even though the coronavirus disease 2019 (COVID-19) pandemic has resulted in fewer acute coronary syndromes (ACS) patients being admitted to hospitals worldwide, clinical characteristics of those patients have not yet been thoroughly examined. Investigating the incidence, clinical presentation, and outcomes of patients with ACS during the COVID-19 pandemic is the goal of the chapter.

INTRODUCTION

The most important infectious illness epidemic and public health disaster in a century have been caused by the SARS-CoV-2 coronavirus. The coronavirus disease 2019 (COVID-19), which the World Health Organization (WHO) declared to be a pandemic

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in March 2020, has infected millions of people and increased morbidity and death rates globally (Barua et al., 2021). Globally, COVID-19 has spread quickly, causing millions of illnesses and fatalities (Umakanthan et al., 20202). The virus has shown to be extremely infectious, and its effects on populations that are more susceptible, such the elderly and those with underlying medical issues, have led to high fatality rates (Majumder et al., 2021; Barua et al., 2022). The increase in COVID-19 cases has put enormous strain on the world's healthcare systems. Hospitals and healthcare institutions have had issues with capacity, resource availability, and personnel (Barua et al., 2022). This strain has impacted those who require normal medical care and therapies for different conditions in addition to COVID-19 patients. Delivery of other crucial healthcare services has been slowed down or interrupted as a result of the focus on COVID-19 response and the strain on healthcare resources (Ochani et al., 2021; Barua et al., 2021). Routine examinations, screenings, elective procedures, and treatments for chronic illnesses have frequently been delayed or cancelled, which might have an impact on long-term health (Yamayoshi et al., 2020; Cui et al., 2021). COVID-19 has significant implications for individuals with pre-existing heart disease. Individuals with underlying heart conditions, such as coronary artery disease, hypertension (high blood pressure), heart failure, or previous heart attacks, are at higher risk of developing severe illness if they contract COVID-19 (To et al., 2021; Barua et al., 2021; Fernandes et al., 2022). The virus can further strain the cardiovascular system, leading to complications and worsening of existing heart conditions. COVID-19 can cause direct injury to the heart muscle, resulting in myocarditis (inflammation of the heart), myocardial infarction (heart attack), or exacerbation of heart failure (Hannan et al., 2021; Barua et al., 2021). This can occur even in individuals without a previous history of heart disease (Figure 1). COVID-19 can promote abnormal blood clot formation, increasing the risk of heart attacks, strokes, or other vascular complications (Perrin et al., 2020). Individuals with existing cardiovascular conditions are already at an increased risk of blood clots, and COVID-19 further exacerbates this risk (Unterman et al., 2022). Some medications commonly used in the treatment of heart disease, such as ACE inhibitors and ARBs, have been a topic of discussion regarding their potential impact on COVID-19 severity (Bahuva et al., 2021; Akinrinmade et al., 2022). However, current evidence suggests that these medications should not be discontinued or changed based solely on COVID-19 concerns, as their benefits in managing underlying heart conditions outweigh any potential risks.

The need for routine and emergency care for illnesses already present necessitated the restructuring and adaptation of health care systems. The number of patients with acute coronary syndromes visiting the emergency room and the number of cardiac procedures have both significantly decreased in some nations affected by the COVID-19 pandemic (Yendrapalli et al., 2022; Barua et al., 2021). COVID-19,

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