**COVID-19 and Comorbidities: A Summary of Findings**

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The novel coronavirus disease (COVID-19), a global pandemic which first originated in the Wuhan City of China has affected nearly 12.2 million individuals leading to a devastating death toll of 553,438 globally [1]. This disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-Cov-2), a genetically similar virus to the one responsible for the 2003 SARS outbreak, has been observed in all groups of individuals, although the disease process have been found to be more severe in certain age groups and in individuals with preexisting health conditions [2-4]. As such, many important studies have been conducted since the onset of COVID-19 in late 2019 to characterize the disease and investigate its pathogenesis in a global effort to mitigate the overwhelming effects of this pandemic.

In a rapid review and analysis of COVID-19 scientific literature (N=27) published until May 15, 2020, our group (Bajgain., et al.) summarizes the most current findings regarding COVID-19 and comorbidities with analysis of disease prevalence and mortality outcome in a large population sample (22,753) from major epicenters around the world [5]. We focus on the top five most prevalent comorbidities present worldwide, consisting of cardiovascular disease (CVD)/hypertension (HTN), diabetes, chronic obstructive pulmonary disease (COPD), malignancy, and chronic kidney disease (CKD), and study their prevalence and association to COVID-19 patient populations.



The prevalence of comorbidities in our patient population was 57.7%, with HTN (27.4%) being the most common comorbidity observed along-side diabetes and CVD (table 1). Surprisingly COPD was not that prevalent in the overall population sample, nor in population samples stratified by major epicenters. Similarly, CKD and cancer had low prevalence across all groups. In a rapid analysis of comorbidity and mortality association in COVID-19 patients, we found that among all fatal cases one or more comorbidity was highly frequent (84.1%) (table 1). However, no clear correlation was identified between composite (OR 0.83 [0.60-0.99], p<0.05) or any specific comorbidity (table 1) and fatal outcomes in COVID-19 cases. Overall, comorbidities, especially HTN, was common in COVID-19 cases; however, the link to fatal clinical outcome is unclear warranting further investigation.

In conclusion, the COVID-19 disease is an ongoing pandemic and an emergent and widespread concern for social, health, and financial sectors around the globe [6]. Largely, it’s devastating death toll is a result of disproportionate severe clinical outcomes observed in higher age groups (>60 yr.) and in groups with preexisting medical conditions. Our study presents findings that corroborates results from existing literature and provides deeper insights into major comorbidities and COVID-19 [7-9]. Higher prevalence of COVID-19 in hypertensive patients for example warrants closer monitoring and precautionary measures to impede the disease spread. Similarly, although lower frequency of disease presence in COPD, CKD, and cancer groups, equal consideration must be given due to higher severity of disease in these cases [10]. Further, identification of these vulnerable groups within our communities necessitates implementation of stricter preventative measures, and a more focused approach to treatment and vaccination efforts when available. With the constantly evolving COVID-19 situation and a plethora of scientific data being reported from around the globe, periodically updated scientific knowledge on this topic is essential in aiding our ability to combat this global pandemic. This summary of findings based on a comprehensive review of current literature can support policy makers, clinicians, and researchers make informed decisions as new strategies are developed to overcome COVID-19.

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