Correlating COVID-19 with Seven Digestive System Cancers: Delving into Common Pathways and Essential Biomarkers

Lorenzo Roberts*

Department of Pancreatology and Surgery, Texas A&M University, College Station, TX 79016, USA

Introduction

The emergence of the COVID-19 pandemic has prompted researchers to investigate its connections with various pre-existing health conditions. Among these, the correlation between COVID-19 and different types of cancer has been of significant interest. This article focuses on the correlation between COVID-19 and seven digestive system cancers, namely esophageal, stomach, colorectal, liver, pancreatic, gallbladder and small intestine cancers. Through a comprehensive exploration of shared pathways and essential biomarkers, we aim to uncover potential relationships and implications for patient management and public health strategies.

Description

COVID-19 is primarily a respiratory illness caused by the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). However, its impact extends beyond the respiratory system, affecting various organs due to the widespread distribution of Angiotensin-Converting Enzyme 2 (ACE2) receptors, which the virus uses to gain entry into cells. This distribution raises concerns about its potential impact on other organ systems, including the digestive system. Several digestive system cancers share common pathways and mechanisms with COVID-19 [1]. Chronic inflammation, dysregulation of the immune response, and angiogenesis are key processes implicated in both cancer progression and the severity of COVID-19. Inflammatory cytokines, such as Interleukin-6 (IL-6), play a critical role in both cancer-related inflammation and the cytokine storm observed in severe COVID-19 cases.

Biomarkers are crucial tools in cancer diagnosis, prognosis, and treatment monitoring. In the context of correlating COVID-19 with digestive system cancers, identifying common biomarkers can provide insights into potential connections. Biomarkers like C-reactive Protein (CRP), Carcinoembryonic Antigen (CEA), and Alpha-Fetoprotein (AFP) have been associated with both cancer progression and COVID-19 severity. Esophageal cancer is a deadly malignancy with poor prognosis. Studies have shown that ACE2 receptors are expressed in esophageal tissues, suggesting susceptibility to SARS-CoV-2 infection. Common biomarkers like CRP and IL-6 can link esophageal cancer progression with COVID-19 severity [2].

Stomach cancer, particularly the intestinal type, has shown correlations with inflammation and immune responses. Chronic gastritis, often caused by Helicobacter pylori infection, increases the risk of stomach cancer. Interestingly, H. pylori infection has been suggested as a protective factor against severe COVID-19 due to its immunomodulatory effects. Colorectal cancer is linked to

inflammation-driven carcinogenesis. Elevated levels of CRP a biomarker for inflammation, have been associated with both colorectal cancer progression and COVID-19 severity. Additionally, gut microbiota dysbiosis, observed in both cancer and COVID-19 patients may play a role in disease outcomes. Liver cancer often arises in the context of chronic liver diseases, such as cirrhosis and viral hepatitis. COVID-19 can exacerbate liver injury in patients with pre-existing liver conditions, potentially influencing cancer progression [3]. Biomarkers like AFP, commonly used in liver cancer diagnosis, could provide insights into the interaction between COVID-19 and liver cancer.

Pancreatic cancer is characterized by a highly inflammatory tumor microenvironment. COVID-19's cytokine storm can further exacerbate this inflammation, potentially impacting disease progression. Shared biomarkers like CRP and IL-6 may act as indicators of the interplay between the two conditions. Gallbladder and small intestine cancers are less studied than their counterparts, but they still exhibit potential correlations with COVID-19. Inflammation and immune dysregulation are key players in these cancers, paralleling the pathogenesis of COVID-19. Understanding the correlation between COVID-19 and digestive system cancers has important implications [4]. Clinicians should consider cancer type, stage, and treatment when managing COVID-19 in cancer patients. Furthermore public health strategies should prioritize cancer patients in vaccination efforts and tailor interventions to address their specific vulnerabilities.

The correlation between COVID-19 and seven digestive system cancers is a complex and multifaceted area of research. By exploring common pathways, mechanisms and essential biomarkers, we can uncover potential relationships that have implications for patient management and public health strategies. As the understanding of these correlations deepens it can lead to more effective interventions and improved outcomes for individuals facing both COVID-19 and digestive system cancers [5].

Conclusion

Future research should focus on unraveling the molecular underpinnings of the connection between COVID-19 and digestive system cancers. Understanding how SARS-CoV-2 interacts with cancer cells and the tumor microenvironment could provide novel targets for therapeutic interventions. Additionally, investigating the impact of COVID-19 on cancer-related inflammation and immune evasion could lead to innovative strategies to mitigate disease progression. The correlation between COVID-19 and seven digestive system cancers presents a multifaceted and complex landscape. Shared pathways, common biomarkers, and implications for patient care and public health strategies underscore the importance of investigating this relationship. As research progresses, a deeper understanding of the interplay between COVID-19 and digestive system cancers could pave the way for personalized treatment approaches and enhanced patient outcomes in the face of these dual challenges.

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Conflict of Interest

None.

***Address for Correspondence:** Lorenzo Roberts, Department of Pancreatology and Surgery, Texas A&M University, College Station, TX 79016, USA, E-mail: robert.lorenzo8@stanford.edu*

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