



Patient-Centered Approaches to Medical Intervention

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CLINICAL SYMPTOMS OF CORONAVIRUS INFECTION

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Abstract

This study examined the clinical manifestations of COVID-19 in 400 patients at varying stages of infection, divided into mild, moderate, and severe groups. Common symptoms like severe headaches, fever, muscle pain, and respiratory distress were assessed. Results showed a clear correlation between disease severity and symptom intensity, with 96% of severe cases reporting fever and 98% experiencing shortness of breath. Hypercoagulation syndrome was significantly more prevalent in severe cases, with 25% showing rapid thrombosis during venipuncture. Diagnostic methods included enzyme-linked immunosorbent assay (ELISA), polymerase chain reaction (PCR), and multispiral computed tomography (MSCT). The study emphasizes the importance of early detection of hypercoagulation to prevent life-threatening complications. Recommendations include close monitoring of high-risk patients and addressing systemic complications. Future research should focus on long-term follow-up of survivors and developing targeted therapies to manage severe COVID-19 cases, ultimately improving patient outcomes.

Keywords: coronavirus infection, hypercoagulability, fibrinogen, anticoagulants, Pigaspin, Acetylsalicylic acid, Clopidogrel, platelet function, Platelet aggregation, von Willebrand factor, vascular-platelet hemostasis

Introduction

The COVID-19 pandemic, which originated in 2019, has posed unprecedented challenges to global health. The virus, identified as a novel beta-coronavirus strain, was confirmed by Chinese researchers to be responsible for this illness [23]. COVID-19 has the ability to affect multiple organs, including the lungs, heart, gastrointestinal tract, and nervous system [2, 6]. Recent studies have shown that COVID-19 RNA can be detected in various bodily fluids and tissues, raising concerns about its transmission pathways, including the potential for gastrointestinal involvement [14, 20, 33]. The virus's interaction with ACE2 receptors in several organs, such as the respiratory and gastrointestinal tracts, contributes to its widespread clinical impact [28]. The role of cytokine storms and hypercoagulopathy in severe cases highlights the importance of monitoring immune and coagulation responses in patients [4, 11]. Despite these findings, much remains to be understood about the disease's transmission and long-term effects [3, 26]. The proposed research aims to explore the clinical manifestations of COVID-19, which could significantly enhance medical knowledge and improve patient outcomes by facilitating early diagnosis and effective treatment strategies.

Materials and methodology

The study was conducted at Zangiota Infectious Diseases Hospital in 2021, involving 400 COVID-19 patients divided into three groups: 100 with mild cases, 150 with moderate cases, and 150 with severe cases. The diagnostic methods included enzyme-linked immunosorbent assay (ELISA), polymerase chain reaction (PCR) for SARS-CoV-2 detection, and multispiral computed tomography (MSCT) to assess lung damage. Clinical parameters like fever, respiratory rate, oxygen saturation, and laboratory results were evaluated. Patient symptoms such as

headache, fever, shortness of breath, and muscle pain were documented, along with their medical history, including contact with COVID-19 patients and comorbidities. A control group of 20 healthy individuals matched for age and gender was included. The study duration could have been approximately 6 to 12 months to capture a wide range of clinical outcomes. Patients with confirmed COVID-19 through serological and PCR tests were included, while those with severe comorbidities, such as blood clotting disorders, respiratory failure, cancer, or immunosuppression, were excluded. The demographic data indicated that 53.75% of the participants were female, with an average age of 56.4 ± 4.8 years. The findings from this study provide valuable insights into the clinical manifestations and progression of COVID-19, which could aid in improving patient care and management strategies.

Results

The study evaluated 400 patients with varying severities of COVID-19 infection to assess the clinical presentation and its correlation with disease progression. The clinical signs and complaints from the patients were categorized based on severity into three groups: mild, moderate, and severe. As shown in **Table 1**, the most prevalent complaints across all groups were severe headaches, fever, sweating, and muscle/joint pain. Notably, as the severity of the infection increased, the frequency and intensity of symptoms also rose.

In **Group 1** (mild cases), 30% of patients reported severe headaches, while in **Group 3** (severe cases), this figure rose to 84%. Similarly, fever was reported by 38% of Group 1 but by 96% of Group 3. Muscle and joint pain, a common symptom, was reported in only 19% of mild cases but increased dramatically to 96% in severe cases. Symptoms of weakness and asthenia were particularly pronounced in severe cases,

with 100% of the patients in Group 3 exhibiting asthenia, compared to 68% in Group 1.

Moreover, respiratory symptoms, such as shortness of breath, were significantly more common in severe

cases (98% in Group 3) compared to only 12% in mild cases. **Figure 1** visualises the percentage distribution of key clinical symptoms across all groups, demonstrating a clear escalation of symptom severity from Group 1 to Group 3.

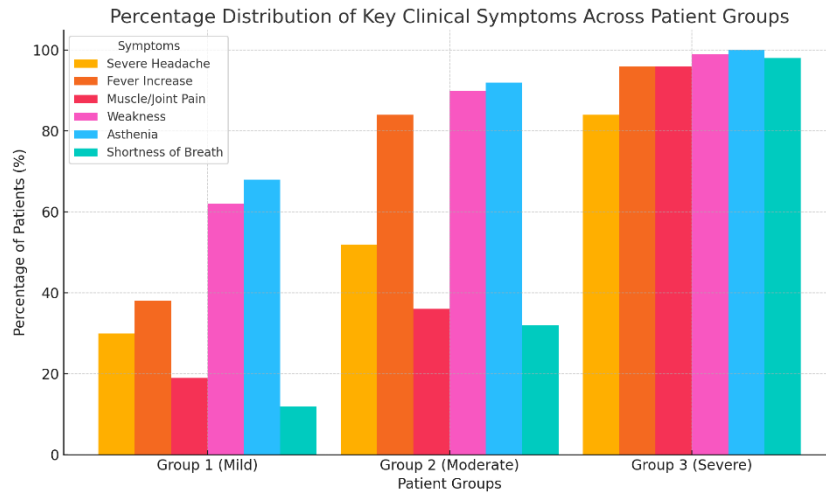


Figure 1: Percentage Distribution of Key Clinical Symptoms Across Patient Groups

Table 1: Clinical signs of COVID-19 across three patient groups

Complaints	Group1 (n=100)	Group2 (n=150)	Group3 (n=150)
Severe headache	30 (30%)	78 (52%)	126 (84%)
Fever increase	38 (38%)	126 (84%)	144 (96%)
Headache	25 (25%)	84 (56%)	142 (95%)
Sweating	55 (55%)	117 (78%)	135 (90%)
Muscle/joint pain	19 (19%)	54 (36%)	144 (96%)
Weakness	62 (62%)	135 (90%)	148 (99%)
Loss of appetite	33 (33%)	99 (66%)	133 (89%)
Shortness of breath	12 (12%)	48 (32%)	147 (98%)
Asthenia	68 (68%)	138 (92%)	150 (100%)

Complaints	Group1 (n=100)	Group2 (n=150)	Group3 (n=150)
Dizziness	24 (24%)	66 (44%)	138 (92%)
Rapid fatigue	54 (54%)	117 (78%)	150 (100%)
Paresthesias	32 (32%)	108 (72%)	135 (90%)

Further analysis of hypercoagulation syndrome revealed a significant correlation with the severity of COVID-19. Group 1 exhibited minimal signs of hypercoagulation, with only 2% of patients reporting a family history of thrombosis and 5% showing rapid thrombosis during venipuncture. However, these figures were markedly higher in Group 3, where 25% of patients demonstrated rapid thrombosis during venipuncture, and 15% reported a family history of thrombosis. Figure 2 presents a comparison of the anamnestic and objective signs of hypercoagulation syndrome across the groups, underscoring its increasing prevalence with severe COVID-19.

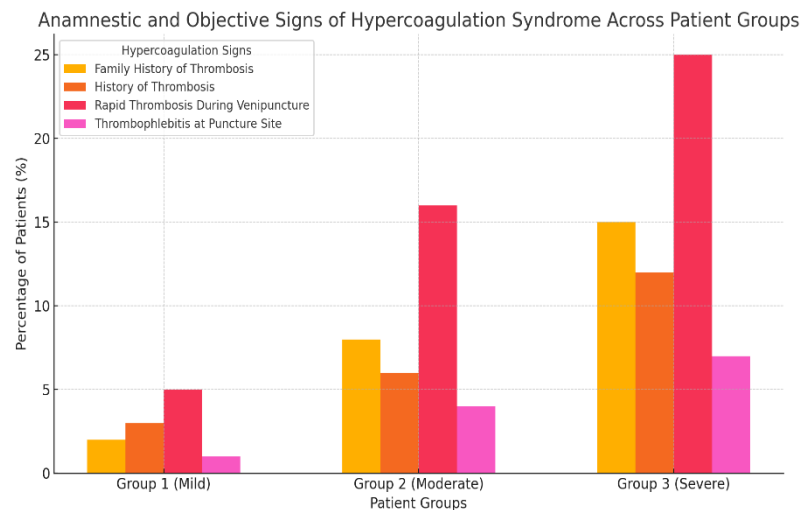


Figure 2: Anamnesic and Objective Signs of Hypercoagulation Syndrome Across Patient Groups

Discussion

The data highlights that COVID-19 manifests with a wide spectrum of symptoms, which become progressively severe with advancing disease. The most common complaints, such as headaches, fever, and muscle/joint pain, intensify with the severity of the infection. Additionally, symptoms linked to hypercoagulable syndrome, such as rapid thrombosis and family history of thromboses, were more prevalent in severe cases, which correlates with the literature that links hypercoagulopathy to severe COVID-19 complications.

The marked increase in symptoms such as asthenia and rapid fatigue in severe cases indicates the systemic nature of COVID-19, particularly its impact on the body's ability to maintain energy and immune responses. The progression of respiratory distress symptoms from mild to severe cases highlights the role of lung involvement, consistent with findings from other studies that identify respiratory complications as a leading cause of morbidity in COVID-19 patients.

Conclusion

In conclusion, this study assessed the clinical manifestations of COVID-19 in 400 patients, categorised into mild, moderate, and severe cases. It was observed that symptoms such as headaches, fever, muscle pain, and respiratory distress became more intense as the severity of the infection increased. Among the severe cases, 96% experienced fever, 99% reported weakness, and 98% had shortness of breath, indicating a clear correlation between disease severity and symptom intensity. Notably, hypercoagulation syndrome was prevalent in severe cases, with 25% of patients experiencing rapid thrombosis during venipuncture. This finding underscores the importance of early identification and management of hypercoagulation in COVID-19 patients to reduce the risk of severe complications like thrombosis.

The study recommends vigilant monitoring of high-risk patients, particularly for signs of thrombosis and asthenia, to prevent severe outcomes. It further highlights the need for integrating early diagnostic measures to manage hypercoagulation.

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Note: All the figures and tables in this chapter were made by the author.