



Clinico-epidemiological variables affecting outcomes of ICU admitted Covid-19 patients in Chattogram

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**A thesis submitted in the partial fulfillment of the requirements for
the degree of MPH (Public Health)**

One Health Institute

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June, 2022

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**This is to certify that we have examined the above MPH (Public Health) thesis and
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List of Abbreviations

Abbreviation	Elaboration
ALT	Alanine Transaminase
ARDS	Acute Respiratory Distress Syndrome
AST	Aspartate Aminotransferase
CD	Clusters of Differentiation
CI	Confidence Interval
COPD	Chronic Obstructive Pulmonary Disease
CRF	Case Record Form
CRP	C-reactive Protein
ECMO	Extra-corporeal Membrane Oxygenation
ELISA	Enzyme-linked immunosorbent assay
ESR	Erythrocyte Sedimentation Rate
HRCT	High-resolution Computed Tomography
HSPGs	Heparan sulfate proteoglycans
icddr,b	International Centre for Diarrhoeal Disease Research, Bangladesh
ICU	Intensive Care Unit
IgA	Immunoglobulin A
IL-6	Interleukin 6
LDH	Lactate Dehydrogenase
NIV	Non-invasive Ventilation
OR	Odds ratio
PCT	Procalcitonin
RT-PCR	Reverse Transcription Polymerase Chain Reaction
SD	Standard Deviation
SE	Standard Error
SES	Socio-economic Status
SGOT	Serum Glutamic-oxaloacetic Transaminase
SGPT	Serum Glutamate Pyruvate Transaminase
TC-WBC	Total Count of White Blood Cell

Abstract

The ongoing pandemic of the coronavirus disease 2019 (COVID-19), which originated from Wuhan, China, has been identified to be caused by the novel beta coronavirus, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Since its emergence, it had a devastating effect on the entire world claiming so many lives so far. Observational studies across the world have shown huge disparity in the clinico-epidemiological and laboratory features of this disease. In this study we attempt to assess the clinical, epidemiological and laboratory parameters affecting the outcomes of COVID-19 positive patients admitted to ICU in Chattogram. This cross-sectional study was performed retrospectively from 1st April, 2021 to 31st October, 2021 on 276 COVID-19 patients admitted to intensive care units of 6 hospitals in Chattogram. Data were obtained from medical records. Most of the patients were male (58.33%) and came from urban area (83.7%) while the highest proportion (28.62%) belonged to the age group of 41-54 years. Diabetes mellitus (145; 52.54%) and hypertension (143; 51.81%) were the most common co-morbidities noted. Among all symptoms dyspnea (92.75%), fever (90.94%), and cough (78.26%) were the most dominating followed by fatigue (55.8%), myalgia (39.86%) and malaise (38.77%). Only 57 of the total patients gave the history of taking Covid-19 vaccine either 1st (6.88%) or both 1st and 2nd doses (13.77%), while around four-fifths of the (79.35%) patients had no history of vaccination. Almost all the variables showed a significant violation of normality assumption except haemoglobin, platelet count, creatinine and serum electrolytes. Serum concentrations of CRP, ferritin, PCT and IL-6 were markedly high among the patients, with a maximum value of 282 (mg/L), 5200 (μ g/L), 111 (ng/mL) and 5003 (pg/mL) respectively. The mean values were CRP 54.5 ± 58.87 , Ferritin 1073.99 ± 1090.13 , PCT 2.71 ± 12.21 , IL-6 239.29 ± 845.81 . Disease severity was associated with the rising age, male gender with co-morbidities like IHD, cancer and diabetes. The findings suggest that, early identification of elevated inflammatory markers, especially CRP, ferritin and LDH, blood parameters especially lymphocytopenia with neutrophilia, other important parameters like ALT, AST, creatinine, K^+ would help in providing effective care so that the mortality can be reduced. It is also evident from this study that, vaccines help immensely in minimizing deaths and complications secondary to COVID-19 infection.