ORIGINAL ARTICLE

Clinical Spectrum and co morbidities of COVID 19 cases admitted at Anwer Khan Modern Medical College Hospital (AKMMCH): A Retrospective record review

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ABSTRACT

Background: Coronavirus diseases 2019 (COVID-19) caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) has induced a sense of panic around the world and has been declared Pandemic by the World Health Organization (WHO) on the 11th March 2020. Bangladesh a country of 17 million people is not an exception regarding COVID-19. It has reported around five lacs COVID-19 cases with seven hundreds of deaths. In dealing those challenges AKMMCH has started opening a COVID-19 unit since July 2020 in order to render services for the admitted cases.

Objective: The objective of this study was to explore the clinical spectrum of COVID-19 admitted cases, co morbidities, in addition to selected socio-demographic characteristics under review.

Material and Methods: This descriptive type of retrospective record review was carried out among 1690 COVID-19 confirmed cases during the period of July-December 2020. Data were generated from hospital COVID unit admission records using a checklist. Data entry and statistical analysis were performed manually and by using computer.

Results: The study revealed that majority of the cases was found within age 31-70 years with mean age 52.58 and standard deviation ± 21.7. About 76% cases were male and 24% were female. It also revealed that the clinical spectrum of COVID-19, 63% & 23% cases were moderate and severe cases respectively and only 9% were critically severe. Majority of the cases had chronic illnesses and the most common co-morbidities were Hypertension (44%), Diabetes (26%) and Cardiac diseases (10%).

Conclusion: It may be stated that male persons with more than 52 years of age were mostly affected by COVID-19 diseases. Usually moderate to critically severe patient were admitted in hospital COVID-19 unit for better treatment. Hypertension, Diabetes, Asthma and Cardiac diseases were found as the most common co-morbidities. A comprehensive case management protocol involving allied disciplines (medicine, cardiology, and endocrinology) can be implemented towards improved services and better out come in particular.

Key Words: COVID-19, Pandemic, SARS-CoV-2

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Introduction

Coronavirus disease 2019 (COVID-19) is an acute infection of the respiratory tract that emerged in late 2019 in China and then progressed to different countries around the world and caused considerable morbidity and mortality.[1-2] These facts ultimately led WHO to declare COVID-19 a pandemic.[3] Although the etiological agent of COVID-19 is known, proper insights about its epidemiology, virology, pathogenesis and management strategy are yet to be developed; making it one of the most notorious public health problems in the world.

COVID-19 may exhibit a variety of clinical presentations. Some COVID-19 patients remain asymptomatic, but they are capable of transmitting the virus.[4] A second group of COVID-19 patients express mild symptoms, some of which are indistinguishable from normal flu and some of them develop moderate symptoms[5-6] of considerable concerns. Finally, some patients develop severe complications like respiratory distress and pneumonia resulting in death.[7–9] The severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) is primarily considered as a respiratory virus, emerging data indicate that COVID 19 involve several body tissues and organ and the virus of COVID 19 imparts its effect on many tissues, some are distal to the respiratory system and in divisive fashion. The symptoms of COVID-19 are induced by severe acute respiratory syndrome corona virus 2 (SARS-CoV-2), the pathological processes are possibly regulated by interactions of viruses with host immunity. The mechanisms underlying pathogenesis of COVID-19 are still elusive and more times will be required to get proper insights about major cellular and molecular events relating to diverse pathogenesis of COVID-19.[10–12] The disease usually starts with mild symptoms such as cough and fever with other allied symptoms of COVID-19. Some of the patients with mild symptoms experience a sudden deterioration of their condition either in the later stage of the disease or in the process of recovery. If the patient proceeds to acute respiratory distress syndrome (ARDS) and multiple-organ failure rapidly, death becomes the usual outcome. Host immunity to the virus seems to play a cardinal role with many other auxiliary factors. As the numbers of patients with COVID 19 has passed 80 million and numbers of death are over 8,00,000 in the world, strategies are needed to block further transmission of SARS-CoV-2 infection and management of COVID 19 patients. To achieve this goal to a suitable extent, the activities of the healthcare delivery system may be centered under T3: test, tracing and treatment as proposed by WHO.[13]

Bangladesh, a country of 170 million people, detected its first case of COVID-19 on 8th March 2020 and the first fatality was recorded on 18th March 2020. The numbers of patients with morbidity and fatality due to COVID-19 have been increasing since then and about 5–15% tested for SARS-CoV-2 are positive for the virus and many of these patients need hospitalization. The management of patients with COVID-19 remains a challenge for the entire world.[14]

The COVID-19 unit in this hospital was running since July 2020 that managing cases efficiently. Therefore, this record review of admitted cases was a modest attempt to explore /investigate some selected variables like; clinical spectrum of COVID-19 admitted cases, co morbidities, and some selected socio-demographic characteristics of the cases towards better & efficient case management in order to improve service delivery in future.

This study was conducted to classify the clinical spectrum of admitted cases of COVID19, to determine co-morbidities among the admitted cases and to find out the selected socio-demographic characteristics of the cases under record review.

Methodology

This was a descriptive type of retrospective record review among admitted cases in Anwer Khan Modern Medical College Hospital COVID Unit during the period from July to December, 2020. Data were generated from hospital admission records using a checklist. Only 1690 case records were reviewed out of 2817 laboratory confirmed admitted cases. The variables considered under review were selected socio-demographic characteristics, COVID-19 clinical spectrum, and related co-morbidities during

Approval of the study protocol, procedures and ethical clearance were obtained from the Institutional Ethical Review Board of AKMMC. The generated data were cross-checked and cleaned. Descriptive statistics including percentages, means and standard deviations were calculated. Data entry and statistical analysis were performed manually and by using computer.

Operational definition of clinical spectrum (SARS-CoV-2)[15]:

Based on the New Coronavirus Pneumonia Prevention and Control Program from the National Health Commission of China, patients with SARS CoV-2 infection were divided into asymptomatic carriers, mild patients, moderate patients, severe patients and critically severe patients. According to the guideline, asymptomatic carriers were not classified as confirmed cases. In our study, asymptomatic carriers were not included. In this study the criteria for different clinical spectrum of cases with SARS-CoV-2 infections considered are as follows:

Types	Characteristics
Asymptomatic carriers[1]	Laboratory confirmed SARS-CoV-2 infection without symptoms and imaging findings.
Mild	Mild clinical symptoms without imaging findings of pneumonia
Moderate	Fever or respiratory symptoms with imaging findings of pneumonia.
Severe	Meet any of the followings: 1. Respiratory distress with respiratory frequency ≥30 breaths/min. 2. Pulse oximeter oxygen saturation (SpO_2) ≤ 93% in resting state. 3. PaO_2/ FiO_2 ≤ 300mmHg (1mmHg = 0.133kPa) 4. Showing rapid progression (>50%) on CT imaging within 24-48h).
Critical severe	Meet any of the followings: 1. Respiratory failure in need of mechanical ventilation. 2. Shock 3. With other organ dysfunction

[1]Asymtomatic carriers were not classified as confirmed cases of COVID-19.

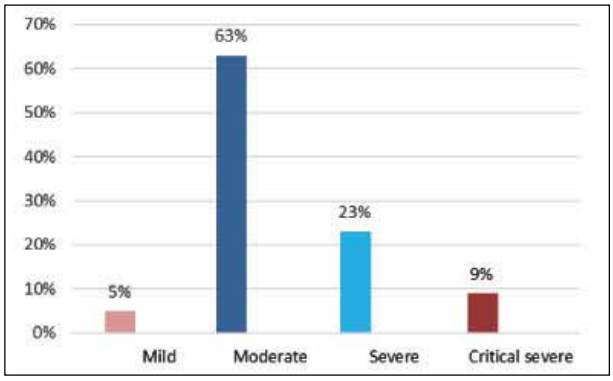
Results:

Table–I: Distribution of COVID-19 cases by socio-demographic characteristics n = 1690

Variables		Number of cases	Percentage (%)
Age	10-30	169	10
	31-50	625	37
	51-70	575	34
	71-90	321	17
Sex	Male	1284	76
	Female	406	24

About 71% cases were found within age of 31-70 years with mean age 52.85 and ± SD 21.7. Majority (76%) were male.

Figure-1: Bar diagram showing distribution of COVID-19cases by Clinical spectrum



Regarding clinical spectrum according to severity of disease, 63% were moderate, 23% were severe and 9% were critical severe.

Figure -2: Bar diagram showing distribution of cases by Comorbidities

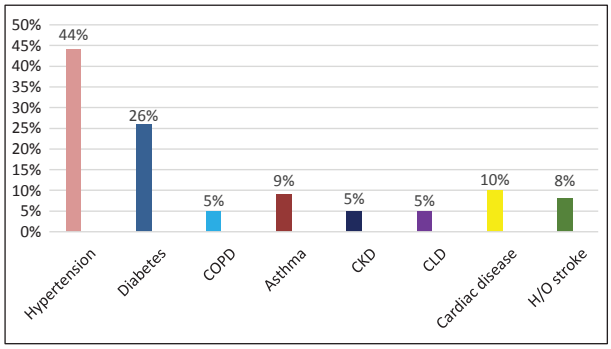


Figure shows that majority of cases had chronic medical illness and the most common comorbidities included were Hypertension (44%), Diabetes (26%) and Cardiac diseases (10%) and Asthma (9%).

A total 1690 cases were admitted cases were admitted between July to December, 2020. About 254 (15%) cases were expired and rest 1436 (85%) were discharged with treatment.

Discussion

It was a descriptive type of retrospective record review carried out on 1690 hospital admitted COVID-19 confirmed cases.

The study revealed that about 71% cases were found within the age 31-70 years with the mean age 52.85 and standard deviation ± 21.7. Recent data show that 27% of the young age group are mostly contracted with coronavirus.16 About 76% patients were male and 24% were female respectively. Some studies showed that an approximate 1:1 ratio of females to males such as 51.3% of female patients in Beiing8 and 51.3% in Jiangsu, China.

Regarding clinical spectrum of the cases during hospital admission, 63% were moderately severe, 23% were severe and 9% were critically severe. Moreover, the incidence of severe or critically severe illness was high in the elderly patient as nearly one third of elderly patients were severe or critically severe cases.

Co-morbidity or chronic illnesses were present on 139 (78.6%) patient and about 361 (21.4%) patient were free from any co-morbidity. Among the patient with co-morbid conditions, most common co-morbidities were Hypertension (44%), Diabetes (26%), Cardiac diseases (10%) and Asthma (9%) respectively. In addition, co-morbidities were mostly found in moderate and severe clinical cases that is about 52% & 17% respectively. Elderly patient with co-morbid conditions were more likely to progress to severe illness.6 Therefore, a comprehensive management protocol of chronic diseases was vital in elderly cases with COVID-19 those demands special attention on monitoring and controlling blood pressure and glucose.

This record review had an important limitation regarding record keeping by a well formulated data recording system and preservation. However, this review finding can be a basis to deal with the concern issues of limitations like; detailed medication & co-morbidities history, details of socio-demographic characteristics in addition to long term monitoring and follow up for early detection of pulmonary complications in deed.

The effective modalities of treatment of COVID-19 syndrome includes control of co-morbid conditions like Diabtetes, Hypertension etc, General management of upper respiratory tract infections, use antibiotics, antiviral (oral or parenteral) in mild to moderate cases. In severe cases, supplementation of oxygen, fluid, calorie and electrolyte balance, Injection low molecular weight heparin particularly in the elderly patient, steroid and in severe critically ill patient plasma therapy was given.[17]

Conclusion

COVID-19 mostly affects the people with age more than 52 years and males are more frequently affected than females. Usually, moderate to critically severe cases were admitted in hospital for better treatment. Comorbid conditions of the cases particularly Hypertension, Diabetes and Cardiac diseases demands comprehensive case management protocol towards better outcome and cost effective services in future in deed. A prospective follow up mechanism by e. mail/ telephone can also be considered for clinical evaluation and monitoring. Multicentric study can be conducted with COVID-19 syndrome.

The effective modality of treatment of COVID-19 syndrome include Paracetamol for fever, Supplementation of oxygen, Fluid, Calorie & electrolyte balance, Proning, Inj. Enoxaperin & Corticosteroid[17].

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