DEMOGRAPHIC AND CLINICAL PROFILE OF COVID-19 PATIENTS IN A TERTIARY CARE PRIVATE HOSPITAL OF DHAKA, BANGLADESH: AN OBSERVATIONAL STUDY

SM ABDULLAH AL MAMUN[1], MAHBOOB NOOR[2], ROWSHNEE JAHAN[3], SHAHJALAL KHAN[4]

Abstract:

COVID-19 caused by SARS COV-2 is a major threat to man kinds. Rapid identification of cases and isolation are vital for containments of rapidly spreading disease.Clinical data on COVID 19 in Bangladesh is lessThe objectives of the study were to evaluate the Demographic profile of Corvid 19 positive Bangladeshi patients and also to see their clinical outcome within defined period. We conducted a retrospective descriptive study on epidemiological & clinical profile along with short term treatment outcomes of 729 COVID 19 patients from COVID dedicated unit including Ward/Cabin, HDU & ICU of Evercare Hospitals Dhaka during the period of 1st May June to 31st October 2020 (6 months)

Total 729 COVID-19 cases were enrolled after getting the result positive for RT-PCR. After collection, data were analyzed to show demographic profile of patients and their outcome after treatment.Among 729 cases, 453 (62%) were male and 276 (38%) were female. The most prevalent affected age groups were 50-64 (32%) . Patients in 15-29 years age group, 52 (10%) in 30- 49 years, 218 (29%). in 50-64 years of age 247(32%) and in 65 above of age 212(29% Mean age is 52.2±2. Among the total admitted cases in different facilities only 79 patient expired .among them 48 patients was male and 31 was female of different age group.

Key words:*COVID-19 pandemic,demographic profile*

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Introduction:

Novel Coronavirus-disease-2019 (Covid-19) caused by the severe-acute-respiratory-syndrome coronavirus-2 (SARS-CoV-2) shows a rapid spread all over the world. In Bangladesh, the first confirmed case of COVID1 9 was detectedon 8th March'2020, almost 3 months after the initial outbreak in late December'. It's still an ongoing pandemic with greater morbidity and mortality. In our study, we describe clinical features, and demographics of patients admitted to our tertiary care center with Corvid–19 infection.

Till 31st October' 2020, the total cases worldwide exceeded 45 million, , total deaths more than 1,183788 , death rate is much higher in hospital admitted critical patients[1].The number of affected cases and deaths both have become exponential during this pandemic. In Bangladesh, the total cases till now, more than 400000 with death around 6000 (Crude Fatality Rate 1.39%)2. There may be many more undiagnosed suspected cases as we have limited testing facilities. The highest percentage of patients are in Dhaka city (44%)[2].

Materials and Methods:

In this retrospective study, we included reverse transcription polymerase chain reaction (RT-PCR) confirmed COVID-19 patients aged ee 15 years, who were admitted in Evercare Hospitals Dhaka (EHD) between 1st May 2020 to 31st October 2020 . Data were collected from admission desk , EMR (Electro medical recording) , patients file and interviewed from patient's attendant .

1. Senior Consultant & coordinator of Respiratory Medicine, Evercare Hospitals , Dhaka
2. Senior Consultant & coordinator of Critical Care Medicine, Evercare Hospitals , Dhaka
3. Consultant of Respiratory Medicine, Evercare Hospitals , Dhaka
4. Registrar of Respiratory Medicine , Evercare Hospitals , Dhaka

Address of correspondence: SM Abdullah Al Mamun, Senior Consultant & coordinator of Respiratory Medicine, Evercare Hospitals, Dhaka, E-mail: mamundr69@gmail.com

a) Study Design:

This retrospective study was conducted among Covid19 patients admitted in dedicated Covid units of Evercare hospitals Dhaka comprising General Ward/ Cabin, HDU & ICU. This study based on epidemiological & clinical profile along with short term treatment outcomes of COVID 19 patients during the period of 1st May to June to 31st October 2020 (6 months).

b) Data Collection:

Doctors who had been treating these patients extracted the medical records from direct interviewing the patients/ attendants after taking the written informed consent & also from the hospital records.

C) Variables:

The data included demographic information and clinical presentation including symptoms on admission and co-morbidities, laboratory investigation reports including chest imagingand clinical outcomes along with duration of hospital stay.

We clinically classified the patients' severity according to the clinical criteria of our national guideline [3]

Grading of severity	Criteria
Mild	Presenting symptoms are mild, and there is no sign of pneumonia on imaging.
Moderate	Fever and respiratory symptoms with radiological findings of pneumonia. Respiratory distress with < 30 breaths / min, Pulse oxymetry showing saturation > 93% at ambient air
Severe	Cases meeting any of the following criteria:- Respiratory distress (ge30 breaths/min);- Finger oxygen saturationde93% at rest;- Arterial partial pressure of oxygen (PaO2)/ fraction of inspired oxygen (FiO2) fe300 mmHg (lmmHg=0.133kPa)
Critical	Cases meeting any of the following criteria:- Respiratory failure and requiring mechanical ventilation- Shock.- With other organ failure that requires ICU care.

d) Laboratory tests:

Nasopharyngeal swab specimens from the upper respiratory tract that were obtained from all patients at admission and 2019-nCoV was confirmed by real-time RT-PCR. All patients were given chest x-rays on admission. HRCT chest was done in selected patients. In addition, complete panel of routine laboratory tests, including complete blood count, blood biochemistry, CRP, D-dimer, Ferritin and Procalcitonin was also done according to clinical requirement.

Normal or low TC of WBC, Lymphopenia, High CRP, Low Procalcitonin associated with bilateral pneumonia in Chest x-ray or GGO in CT scan of Chest: Diagnosis is COVID-19 during this epidemic[3] regardless of RT-PCR positivity .

e) Statistical analysis:

All statistical analyses were performed using a standard software package . Descriptive and inferential statistics were used in this analysis. Frequency and percentages are presented for the categorical variables such as fever, cough & other symptoms , SPSS 17 was used for statistical analysis.

Results :

Total Seven hundred and Twenty nine patients were admitted during this period with positive RtPCR for SARS-COV2 fulfilling inclusion criteria . Among them 453(62%) were male & 276(38%) were female . All are of above 15 years of age .22 child with covid19 positive also admitted through ED under the care of pediatric department and has been excluded from this study .

Among the total cases, 575 (79%) have mild to moderate symptoms , treated at ward/Cabin , 68 (9%) had severe symptoms ,treated at HDU & 86 (12%) patients had severe to critical condition , treated at MICU .

Among the total admitted cases only 79 patient expired . whom 48 patients was male and 31 was female of different age group. Highest age group was 65 &above(n=46) but lowest age group of death was 15-29(n=1) .

All data were compiled with through convenient sampling from ward registrar& EMR HS system of Evercare hospitals. The statistical analysis was done by the Statistical Package for the Social Sciences.

a)Demographic Characteristics:

The age range of our patients was 15 years and above categorized in to 4 groups . Highest age of the patients was- 89 years. Mean age was 52 years Highest percentage of patients admitted was in the 50-64 age group (32%). Regarding gender distribution about two-third patients weremale (62%)(n-453)& nearly one-third patients were female (38%) (n- 276), Among total (n=729), 575 (79%) had been admitted in General Covid unit, 68(9%) had been admitted in HDU & 86(12%) in covid ICU.

Gender wise Admission Data

Table-I
Gender distribution

Gender	Total admission	Percentage
Male (453)	453	62%
Female (276)	276	38%
Total Admission	729	100%

Age group wise Admission Data

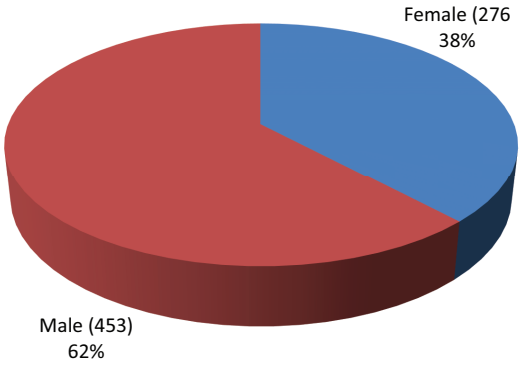

Fig.-1: *Gender distribution*

Table-II
Age distribution

Covid-19 Admission May'20-Oct'20					
Age group	Male	Male (%)	Female	Female (%)	Total
15-29	24	5%	28	10%	52
30-49	138	30%	80	29%	218
50-64	158	35%	89	32%	247
65 above	133	29%	79	29%	212
Total	453	62%	276	38%	729

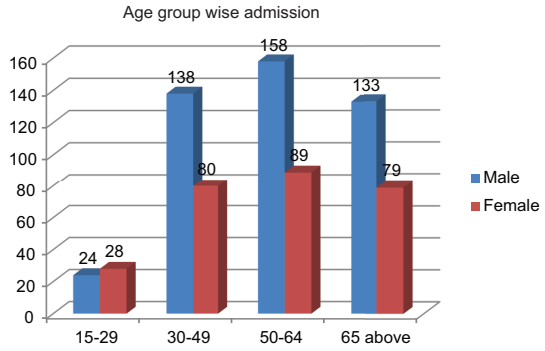

Fig.-02 & 3: *Age distribution*

Table-III
Facility distribution

Bed Category wise Admission Data Covid-19 Admission May'20-Oct'20		
Bed Category	Number	%
MICU (86)	86	12%
HDU (68)	68	9%
6C & 5B (575)	575	79%
Total	729	100%

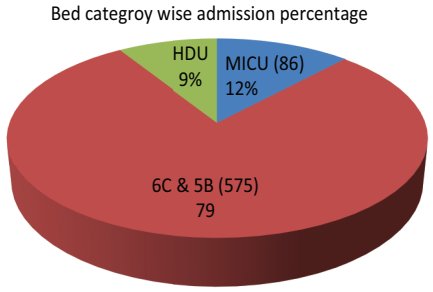

Fig.-3: *Facility distribution*

b) Clinical Characteristics & Co-morbidites:
Regarding symptoms, fever (89.30%) with respiratory symptoms like cough(86.41%) & dyspnea (52.12%) were in the top of list, followed by fatigue(48%)(Table-02). Anosmia &; altered taste sensation were 2 specific symptoms of COVID-19, which was present in 38% & 19% of patients respectively. Other than respiratory symptoms, patients also present with gastro-intestinal &neurological symptoms.

Table-V
Symptoms

Symptoms	Present (Number)	Present (%)	Absent (Number)	Absent (%)
Fever	651	89.30	78	10.79
Cough	630	86.41	99	13.59
Dyspnea	380	52.12	349	47.88
Fatigue	350	48.01	379	51.99
Sore throat	256	35,11	473	64.89
Altered Sense of Taste	139	19.06	590	80.94
Chest pain	189	25.90	540	74.08
Anorexia	120	16.46	609	83.54
Loose motion	89	12.20	640	87,80
Headache	100	13.71	629	86.29
Vomiting	69	9.46	660	90.54
Anosmia	249	34.15	480	65.85

Regarding co-morbidities, around half of the patients had been suffering from Hypertension (54%) and Diabetes (52 %), other less common associated co-morbidities are shown in table.

Table-V

Co-morbidities

	Co-morbidities & Risk Factors	Present (Number)	Present (%)	Absent (Number)	Absent (%)
Co-Morbidities	HTN	400	54.86	329	45.14
	DM	380	52.12	349	47.88
	COPD	109	14.95	619	85.05
	Br Asthma	149	20,43	580	79.57
	CVD	35	4.8	694	95.2
	IHD	49	6.72	680	93.28
	CKD	72	9.8	657	90.2

e) Treatment Outcome : Among total 729 we could discharged 650(79%) of our patients successfully.. 11% patients died from severe to critical illness . Only 6 patients died among moderate cases admitted initially in General covid unit and finally shifted to MICU , 19 patients died in HDU and maximum 54 patients died in ICU .Among all death 48 was male& 31 was female,. Highest age group was 65 &above(n=46) but lowest age group of death was 15-29(n=1) .

Table-VI

Outcome of total admitted patients

Covid-19 Location	Patient Admission Outcome					
	Admission		Discharge		Expired	
	Male	Female	Male	Female	Male	Female
Ward-6C & 5B	359	216	355	214	4	2
MICU	56	30	21	11	35	19
HDU	38	30	29	20	9	10

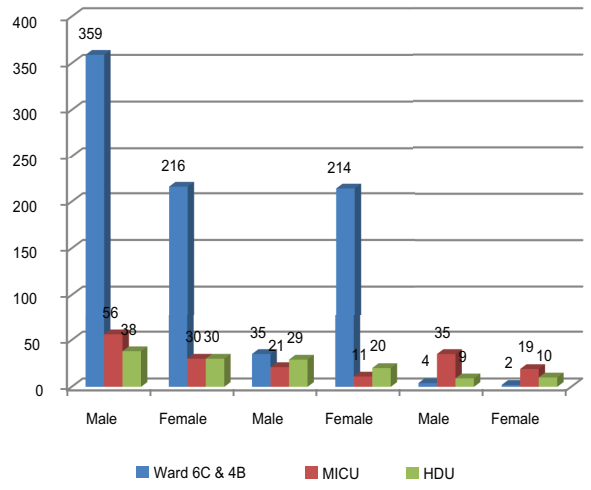

Fig.-4: *Outcome of total admitted patients*

Table-VII

Mortality related to age& sex

Age group	Male	Female	Total
15-29	0	1	1
30-49	4	1	5
50-64	15	12	27
65 above	29	17	46

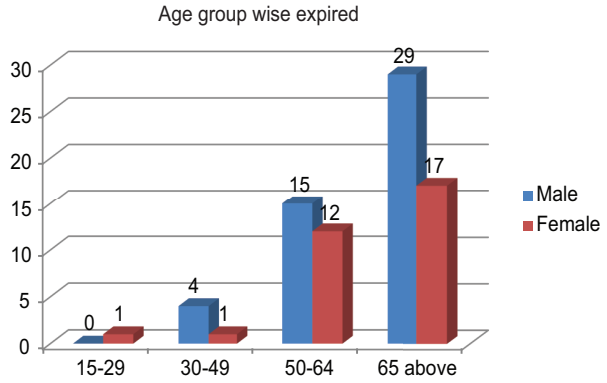

Fig-05: *Mortality related to age& sex*

Discussion :

Best of our knowledge, this retrospective study report is the largest case study to date of COVID 19 patients in a Private Hospital of Dhaka recruiting 729 cases on the basis of clinical context with typical RT-PCR positivity.

RT-PCR positive for COVID-19 patients ranging from moderate to severe/ Critical symptoms were admitted in Evercare hospitals through Emergency department . At Emergency department patients initially stay at triage area for stratifying them as moderate to critical according to Clinical presentation , O2 requirement , Chest imaging & Lab reports . Then patients were shifted to respected facilities maintaining strict air-born precaution under the supervision of Infection control team . From the beginning of May 2020 to 31st October total 751 was admitted through ED . But due to our inclusion criteria , 22 child patients were excluded .

Total 729 adult patients >15 of age admitted in different facilities (Ward/Cabin. HDU. ICU) . Among 729 cases, 453 (62%) were male and 276 (38%) were female.

Our demographic findings revealed that highest percentage of patients belonging to age range 50-64 years (32%) with male predominating(62% male, similar with the finding of Asia, e.g. China[4] (median age: 47 years; 58% male), India[5] (mean age 40 years,

67% male) and other reports from Bangladesh11 (Male: female ratio 2.33:1). But studies from America7 (median age, 63 years) and Europe4(Median age, 67.5 years) showed higher age of patients, but same male preponderance.[6,7]

Patients in 15-29 years age, 52 (10%) in 30- 49 years, 218 (29%) in 50-64 years of age 247(32%) and in 65 above of age 212(29% Mean age is 32.2±2.

The male female ratio was 1.64:1. ,which is consistent with other hospitals data within the Dhaka city . At MR Khan Shishu Hospital & ICH, Dhaka, it was 1.7:1 &similar with the finding of Asia, e.g. China[8,9]

Median hospital stay ranged from 4 to 33 days within China, and 4 to 21 days outside of China, across 45 studies[10]. This is similar with our study, the duration of Hospital stay in our study was from 01-36 days, mean was 7 days. There was significant difference for severe and non-severe cases (p value 0.01).Severely sick patients required longer duration of hospitalization

It has been found that more males were infected bySARSCoV.,[11]Current research suggests that ACE2 is the receptor for COVID-19[12], and its expression in men is higher than that in women[13], which may be the reason for the higher proportion of men with severe illness. The reduced susceptibility of females to viral infections could also be due to the protection from X chromosome and sex hormones[14].

Total death from !st May to 31st October 2020 among 729 admitted patients was 79 (11%) . Mortality was highest among age group above 65 (n=46) & was lowest in younger group 15-29(n=1) . Regarding the sex variation, mortality was highest in male (61,5%) than female(38.5%) .

Conclusion

In conclusion, COVID-19 in Bangladesh are found with a variety of clinical presentations in adult populations ranging as : asymptomatic , mild to moderate cases , severe & critical cases. Asymptomatic & mild symptomatic patients mostly staying at home and getting treatment over tele medicine consultation. Some Moderate symptomatic &severe to critically ill patients presenting with respiratory distress, low O2 level, acute diarrhea, weakness, and so on are coming for hospitals admission .

we have some limitations of our study. The study was done in a single center within a very short time frame on a limited number of samples. Asymptomatic patients, patients with mild symptoms at home could not be included in our study. More detailed patient information, particularly regarding clinical outcomes and follow up, was unavailable at the time of analysis. So, the outcome of study needs to be further verified by larger sample with multi-center study with extended follow-up. In conclusion, we must give emphasis on early diagnosis, early isolation and early management of all COVID-19 patients to reduce transmission and mortality, thus, to save mankind from this invisible enemy.

References :

1. Indian Journal of Otolaryngology and Head & Neck Surgery(2020)
2. WHO Bangladesh COVID 19 Morbidity and Mortality Weekly Update (MMWU) 27 July 2020 /Vol N022
3. National Guidelines on Clinical Management of Coronavirus disease 2019(COVID-19), Version 7.0 28 May 2020, Disease Control Division, Directorate General of Health Services, Ministry of Health &Family Welfare, Government of the People's Republic of Bangladesh, Page-18
4. Guan WJ, Ni ZY, Hu Y, Liang WH, Ou CQ, He JX, et al. Clinical Characteristics of Coronavirus Disease 2019 in China. N Engl J Med. 2020;382(18):1708 1720. https://doi.org/10.1056/NEJMoa2002032. PMid:32109013. PMCid:PMC7092819
5. Colaneri M, Sacchi P, Zuccaro V, Biscarini S, Sachs M, Roda S, et al. Clinical characteristics of coronavirus disease (COVID-19) early findings from a teaching hospital in Pavia, North Italy, 21 to 28 February 2020. Euro Surveill. 2020;25(16):2000460. 8. National Guidelines on Clinical Management of Coronavirus Disease 2019 (COVID 19) Version 7.0 28 May 2020. https://doi.org/10.2807/1560-7917.ES.2020.25.16.2000460 PMid:32347201 PMCid: PMC7189652
6 N Chen, M. Zhou, X. Dong, J. Qu, F. Gong, Y. Han, et al. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study Lancet (2020).https://doi.org/10.1016/S0140-6736(20)30211-7
7 . Kadhkar P, Kaka N, Baig MN, A Comprehensive Literature Review on the Clinical Presentation, and Management of the Pandemic Coronavirus Disease 2019 (COVID-19), Cureus. 2020 Apr; 12(4): e7560.https://doi.org/10.7759/cureus.7560. PMid:32269893 PMCid:PMC7138423
8. Zhou, P., Yang, X.-L., Wang, X.-G., Hu, B., Zhang, L., Zhang, W., Shi,Z.-L. (2020). Discovery of a novel coronavirus associated with the recent pneumonia outbreak in humans and its potential bat origin. bioRxiv.
9. SGM Mowla, KAK Azad, A Kabir et al, Clinical and Epidemiological Profile of 100 Confirmed COVID-19 Patients Admitted in Dhaka Medical College Hospital,

Dhaka, Bangladesh, Journal of BCPSJune 2020 DOI: 10.3329/jbcps.

10 Rees E, Nightingale E, Jafari Y et al. COVID-19 length of hospital stay: a systematic review and data synthesis. May 2020.https://doi.org/10.1101/2020.04.30.20084780

11, Channappanavar R, Fett C, Mack M, Ten Eyck PP, Meyerholz DK, Perlman S. Sex-based differences in susceptibility to severe acute respiratory syndrome coronavirus infection. J Immunol 2017; 198:4046-53. https://doi.org/10.4049/jimmunol. 1601896. PMid:28373583 PMCid: PMC5450662

12. Zhou, P., Yang, X.-L., Wang, X.-G., Hu, B., Zhang, L., Zhang, W., Shi,Z.-L. (2020). Discovery of a novel coronavirus associated with the recent pneumonia outbreak in humans and its potential bat origin. bioRxivhttps://doi.org/10.1101/2020.01.22.914952

13. Zhao, Y., Zhao, Z., Wang, Y., Zhou, Y., Ma, Y., &Zuo, W. (2020). Single-cell RNA expression profiling of ACE2, the putative receptor of Wuhan 2019-nCov., bioRxiv. https://doi.org/10.1101/2020.01.26.919985

14. Jaillon S, Berthenet K, Garlanda C Sexual dimorphism in innate immunity Clin Rev Allergy Immunol, 56 (2019), pp. 308-321 Cross Ref View Record in Scopus Google Scholar https://doi.org/10.1007/s12016-017-8648-x.PMid:28963611