International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2020): 7.803

Clinical Features and Treatment Outcomes of Patients Infected with Novel Corona Virus 2019 in Wachemo University Nigist Eleni Mohamed Memorial Hospital

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Abstract: ***On 11 February 2020, the World Health Organization announced a new name for the epidemic disease caused by 2019-nCoV. Corona virus disease 2019 (COVID-19) is the third severe outbreak of a member of the corona vioridae family that has occurred during the past 20 years. The corona virus disease 19 (COVID-19) is a highly transmittable and pathogenic viral infection caused by severe acute respiratory syndrome. Corona virus is an envelope and single-stranded ribonucleic acid named for its solar corona-like appearance due to 9–12-nm-long surface spikes. Frontline workers including the health care workers were at increased risk of infection during the COVID-19 pandemic. Current management of COVID-19 is supportive, and respiratory failure from acute respiratory distress syndrome is the leading cause of mortality. The purpose of this study will be to assess clinical features and treatment outcomes of patients infected with novel corona virus. This study was applied health institution based quantitative studies with descriptive and analytic components to address its specific objectives. Target population for this study will be all confirmed COVID-19 patients who are treatedat Nigist Eleni Mohamed memorial hospital. All confirmed covid 19 patients who were admitted at the treatment center of Nigist Eleni hospital was included in this study. Result: Three fourth (75%) of the COVID-19 patients admitted to Wachemo university Nigist Eleni hospital was male, followed by older aged patients greater than 65 (22.5%). More than half of the patients were admitted in March and April (59.2%). Two patients out of 120 were pregnant. In March and April there are the highest number of patients admitted to the covid centre.Forty-three percent of the patients is having one or more comorbidities. From the patients having comorbidities 25 (50%) patients were hypertensive followed by diabetes mellitus 21 (40%).***

Keywords: Novel Corona Virus, COVID-19

1. Introduction

Recently, by the end of 2019, WHO was informed by the Chinese government about several cases of pneumonia with unfamiliar etiology. The outbreak was initiated from the human seafood market in Wuhan city of China and rapidly infected more than 50 peoples. The live animals are frequently sold at the human seafood market such as bats, frogs, snakes, birds, marmots and rabbits (1).

Regarding the virus itself, the international committee on taxonomy of Viruses has renamed the previously provisionally named 2019-nCoV as severe acute respiratory syndrome coronavirus-2. Although early studies reported a link between a single local fish and wild animal market and most cases of infection, indicating possible animal-to-human transmission, studies have increasingly demonstrated human-to-human transmission of SARS-CoV-2 (2).

SARS-COV-2 is the etiologic agent of COVID-19, and its viral nucleic acid detection using real-time polymerase chain reaction is considered the reference standard for the diagnosis. Specimens should be obtained from saliva, upper respiratory tract, lower respiratory tract (3, 4, 5).

Coronavirus disease 2019 (COVID-19) is the third severe outbreak of a member of the coronavioridae family that has occurred during the past 20 years, following the severe acute respiratory syndrome (SARS) in 2002-2003 and the Middle-East respiratory syndrome (MERS) in 2012. Unlike the two previous outbreaks, the infection disease sustained by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has dramatically spread around the world, affecting millions of people, causing hundreds of thousands of deaths, and being declared a pandemic disease by the World Health Organization (5).

The corona virus disease 19 (COVID-19) is a highly transmittable and pathogenic viral infection caused by severe acute respiratory syndrome corona virus 2 (SARS-CoV-2), which emerged in Wuhan, China and spread around the world. Genomic analysis revealed that SARS-CoV-2 is phylogenetically related to severe acute respiratory syndrome-like bat viruses, therefore bats could be the possible primary reservoir. The intermediate source of origin and transfer to humans is not known, however, the rapid human to human transfer has been confirmed widely (6, 1).

In the absence of a vaccine, several countries have implemented a series of interventions to reduce contagious and decelerate progression of the pandemic. One of the

containment measures was the total confinement of the population in their homes, also known as lockdown, which led to the disruption of most daily activities (7).

Although the symptoms of COVID-19 are predominantly respiratory, symptoms and complications in the central and peripheral nervous system have increasingly been described, including anosmia, ageusia and headache. These complications are possibly caused by direct viral injury, immunological mechanisms and by hypoxia. It is estimated that with the COVID-19 pandemic there has been a five-fold increase in the incidence of headache in the affected regions. In most studies, the prevalence of headache in patients with COVID-19 is around 12%. Little is known about the characteristics of these headaches (5, 8).

Aetiology

Coronavirus is an envelope and single-stranded ribonucleic acid named for its solar corona-like appearance due to 9–12-nm-long surface spikes. There are four major structural proteins encoded by the corona viral genome on the envelope, one of which is the spike proteins that binds to. This disease can be transmitted from infected persons to the uninfected populations through fomites including the respiratory droplets within the area of six feet during coughing, sneezing, spitting, etc. SARS-CoV-2 can survive on an inanimate surface such as tables and door handles depending upon the type of material and conditions. The new studies have shown that the SARS-CoV-2 can remain detectable in aerosols for up to 3 hours, on cardboard surface survived for 24 hours and up to 2 to 3 days on plastic and stainless steel (6).

Frontline workers including the health care workers were at increased risk of infection during the COVID-19 pandemic. Evidence suggests that frontline healthcare workers, who were directly involved in the collection of samples, diagnosis, treatment, and care of patients during an outbreak, were also at higher risk of developing psychological distress and mental health symptoms. Anxiety, distress, depression, fear of spread of infection to family, friends and colleagues, anger and confusion were some of the immediate psychological impacts documented among frontline healthcare workers (9).

Ethiopia, being one of the developing countries trying to address the diverse needs of its people is currently at the verge of the epidemic. The government, both at national and regional level, is currently showing high commitment to control the epidemic before it causes significant damage to the community. Case identification, contact tracing, isolation and quarantine are the actions being taken to control the spread of the disease in addition to the preventive measures put in place (5, 8).

Current management of COVID-19 is supportive, and respiratory failure from acute respiratory distress syndrome is the leading cause of mortality. Oxygen is an essential medicine for COVID-19, it is therefore very important to assess availability of different sources of oxygen, as well as the delivery and supply systems to the patient, in order to prioritize, reallocate and compare with calculated numbers to define the needs. As of April 4, 2020, global supply-chain issues remain extremely disrupted as a result of the COVID-19 pandemic. It is strongly recommended that Ministries of Health leverage existing supplies and resources, where possible, in order to enable an immediate response (8).

Purpose of the Study

The purpose of this study was to assess clinical features and treatment outcomes of patients infected with Novel corona virus 2019 in WachemoUniversityNigistEleni hospital.

Research objectives

1) To assess clinical features of patients admitted to Wachemo University COVID-19 unit, Wachemo University Nigist Eleni hospital.
2) To determine the treatment outcomes of patients admitted to Covid -19 unit, Wachemo University Nigist Eleni hospital.

This study wasapplieda health institution based quantitative studies with descriptive and analytic components to address its specific objectives.This study was conducted at Hossaena town which is the main city of Hadiya zone.The population relevant to this study depends upon the objective of the study, the research population, geographical areas selected for the study, and the operational definitions of the study unit. Target population for this study was all confirmed COVID-19 patients who are treatedat Nigist Eleni Mohamed memorial hospital.

All patients with COVID-19 admitted to Wachemo university comprehensive specialized hospital between June 2020 to June 2021 were included. All those patients had a laboratory- confirmed SARS-CoV-2 infection

2. Result and Discussion

The basic data including gender, age, time of admission, symptom, comorbidity (hypertension, diabetes mellitus, cardiovascular disease, COPD, malignancy, chronic kidney disease, and immune deficiency VIRUS), severity status (severe or non-severe), health status at discharge count were extracted from patient's medical record.

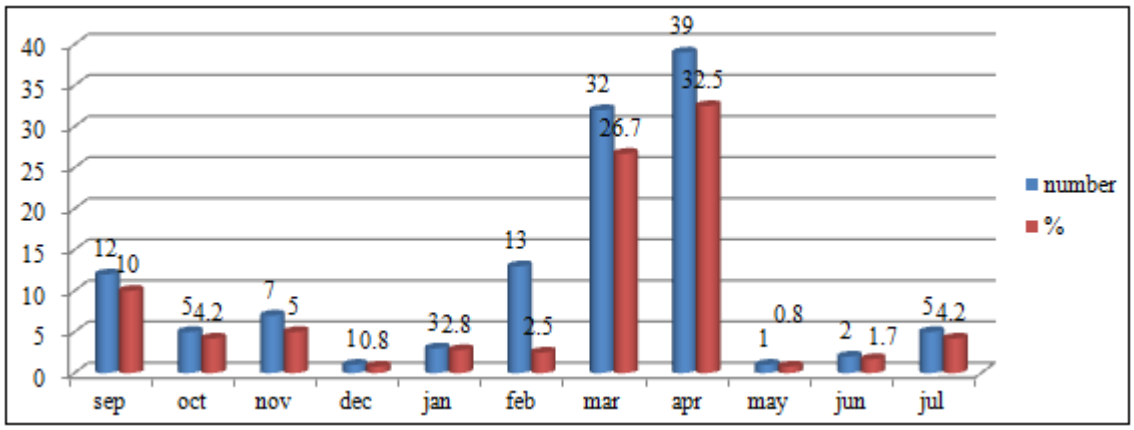
Socio demographic characteristics of patients with Covid -19

		Number of COVID-19 patients	Percent
Age	5-14	1	0.8
	15-30	23	19.2
	31-64	69	57.5
	G65	27	22.5
	Total	120	100.0
Sex	Male	91	75.8
	Female	29	24.2
Pregnant or in the post-partum period	Yes	2	1.6
	No	119	98.4
Is the case symptomatic	Yes	89	74.2%
	No	31	25.8

Three fourth (75%) of the COVID-19 patients admitted to Wachemo university Nigist Eleni hospital was male, followed by older aged patients greater than 65 (22.5%).

More than half of the patients were admitted in March and April (59.2%). Two patients out of 120 were pregnant.

74.2% of the patients admitted to this study treatment facility were symptomatic. The major symptoms observed in positive patients were intense fatigue or abnormal state of drowsiness, cough, difficulty of breathing, loss of appetite, headache, muscular pain, and chest pain. Runny nose, sore throat, conscious disorders are the least observed symptoms in positive patients.



In March and April there are the highest numbers of patients admitted to the covid centre. December, January and June are relatively small number of patients were admitted to the treatment facility. There is a very strong evidence of relationship between number of positive cases and months of admission.

Physical findings and co morbidities of patients with COVID-19 admitted to Nigist Eleni hospital

		N	%
Lung auscultation with finding	yes	40	33.3
	No	80	66.7
Diabetes	Yes	21	17.5
	No	99	82.5
Liver disease	Yes	2	1.7
	No	110	91.7
Malignancy	Yes	2	1.7
	No	118	98.3
Lung x- ray with findings	Yes	24	20
	No	96	80
Rapid respiration (dyspnee, tachypnee	Yes	68	56.7
	No	52	43.3
Any sign resulting from pulmonary auscultation	Yes	23	19.2
	No	97	80.8
HIV/AIDS	Yes	4	3.3
	No	116	96.7
Any cardio vascular disease	Yes	9	7.6
	No	111	92.4
Co morbidities	Hypertension	25	20.8
	Diabetes Mellitus	21	17.5
	DVT	1	.8
	Asthma	2	1.7
	Renal disease	4	3.3
	leukemia	1	.8
	By cytopinia	1	.8
	Breast cancer	1	.8
	catatonia	1	.8
	malignancy	2	

Thirty-three percent of patients with COVID-19 have findings with lung auscultation. 17.5 % of patients were diabetic. More than half (56.7%) of the patients were faced with rapid respiration (dyspnea, tachypnea). 7.6 and 3.3% of patients were a co morbidity of cardiovascular disease and HIV AIDS. Hypertension, Diabetes Mellitus, DVT, Asthma, renal disease, leukemia, bycytopenia, breast cancer, catatonia, malignancy is the main co morbidities of Covid - 19 patients admitted in Nigist Eleni hospital.

Outcome of patients with Covid 19 at Wachemo University Nigist Eleni hospital

	N	%
Recovered	46	38.3
Death	33	27.5
Unknown	39	32.5
Referred	2	1.7
Total	120	100.0

Health status at time of reporting Vs Age of respondent

		Age of respondent				Total
		5-14	15-30	31-64	G65	
health status at time of reporting	Recovered	1	8	31	6	46
	Death	0	3	20	10	33
	Unknown	0	11	17	11	39
	Referred	0	1	1	0	2
Total		1	23	69	27	120

Thirty-eight percent of the patients with COVID-19 were recovered, 27.5% were death and 32.5% of patient's outcome were not documentedon patient card properly whether they are recovered or death.

Outcome of the patient Vs Fever

		Fever					
		No	%	Yes	%	Total	%
Outcome of the patient	Recovered	20	42.5	26	35.6	46	38.3
	Death	9	19.1	24	32.8	33	27.5
	Unknown	16	34	23	31.5	39	32.5
	Referred	2	4.2	0		2	1.66
Total		47	39.1	73	60.83	120	

Sixty % of the patients had fever greater than 37 0c, 38% of the patients with fever during admission had recovered, and 19% of the patients with fever during admission had died.

Health status at time of reporting Vs Abnormal lung auscultation

		Abnormal lung auscultation		Total
		Yes	No	
Health status at time of reporting	recovered	15	31	46
	death	13	20	33
	unknown	11	28	39
	referred	1	1	2
Total		40	80	120

Health status at time of reporting VsDiabetes				
		Diabetes		Total
		Yes	No	
health status at time of reporting	Recovered	6	40	46
	Death	7	26	33
	Unknown	8	31	39
	Referred	0	2	2
Total		21	99	120

Health status at time of reporting Vs Rapid respiration (dyspnee, tachypnea)

		Rapid respiration (dyspnee, tachypnea)		Total
		Yes	No	
health status at time of reporting	Recovered	24	22	46
	Death	25	8	33
	Unknown	17	22	39
	Referred	2	0	2
Total		68	52	120

Health status at time of reporting Vs Comorbidity				
		Comorbidity		Total
		Yes	No	
health status at time of reporting	recovered	14	32	46
	death	16	17	33
	unknown	20	19	39
	Referred	2	0	2
Total		52	68	120

Health status at time of reporting Vs Hypertension

			Hypertension		Total
			Yes	No	
health status at time of reporting	Recovered	Count	3	43	46
		% Within health status at time of reporting	6.5%	93.5%	100.0%
		% of Total	2.5%	35.5%	38.3%
	death	Count	11	22	33
		% Within health status at time of reporting	33.3%	66.7%	100.0%
		% Of Total	9.2%	18.3%	27.5%
	unknown	Count	8	31	39
		% Within health status at time of reporting	20.5%	79.5%	100.0%
		% of Total	6.7%	25.8%	32.5%
	Referred	Count	0	2	2
		% Within health status at time of reporting	0.0%	100.0%	100.0%
		% Of Total	0.0%	1.7%	1.7%
Total		Count	98	22	120
		% Within health status at time of reporting	18.3%	81.7%	100.0%
		% Within hypertension	100.0%	100.0%	100.0%
		% of Total	18.3%	81.7%	100.0%

Outcome of the patient VsIntubation

		Recovered		Death		Unknown	
		N	%	N	%	N	%
Intubation	Yes	0	0%	7	77.80%	2	22.20%
	No	46	42.20%	26	23.90%	37	33.10%

Intubation of patients when they are faced difficulty of breathing were one of the treatment modalities worldwide, but the outcome of the patient after intubation shows not good in the treatment cite of this study. Almost all patient intubated were died. CHI- square test of association= 0.002- There is significant association between intubation and outcome of the patient.

		Recovered		Death		unknown	
		N	%	N	%	N	%
Co – morbidity	yes	14	30.40%	16	51.50%	20	57.60%
	no	32	69.60%	17	48.50%	19	42.40%

Forty-three percent of the patients is having one or more comorbidities. Fromthe patients having comorbidities 25 (50%) patients were hypertensive followed by diabetes mellitus 21 (40%). 46.6 % of the patients with diabetes is having hypertension. Different studies show the presence of comorbidity for covid -19 patients worthen the disease situation, but CHI- square test of association= 0.108 in this study shows there is no significant association between co morbidity andoutcome of the patient. Nearly equal patients with comorbidity and without comorbidity died due to COVID-19 disease.

		Recovered		Death		unknown	
		N	%	N	%	N	%
Difficulty of breathing	Yes	31	67.40%	29	87.90%	25	35.90%
	No	15	32.60%	4	12.10%	13	64.10%

- CHI- square test of association= 0.054- There is significant association between difficulty of breathing and outcome of the patient

		Death	
		N	%
Sex of the patient	Female	4	12.10%
	Male	29	87.90%

- CHI- square test of association= 0.058, there is significant association between sex of the patient and death.

Age	Treatment out comes at Discharge			
	Recovered	Death	Unknown	Referred
May-14	1/ 100%	0%	0%	0%
15-30	8/34%	1/ 4.3%	11/47.8%	0%
31-64	31/41.9%	20/29%	17/22.4%	1/.6%
>65	6/22%	10/37%	11/40.7%	0%

- Chi square test of association - There is no significance association between age and outcome of the patient

Health status at time of reporting Vs Sex of the patient Cross tabulation

		Sex of the patient		Total
		Female	Male	
Health status at time of reporting	Recovered	12	34	46
	Death	4	29	33
	Unknown	11	28	39
	Referred	2	0	2
Total		29	91	120

3. Discussion

Three fourth (75%) of the COVID-19 patients admitted to Wachemo university Nigist Eleni hospital was male, this finding was supported by Huang et al studies conducted in Wuhan (10).Greater than 80 % of the patients were aged greater than 31 and 22.5 % are age greater than 65. This result was supported by the study conducted by Sargiacomo 2020 in Wuhan city older age as a significant risk factor for in-hospital morbidity, suggesting that advanced chronological age may play an epidemiological role in patient clinical outcomes (10). Seventy five percent of the patients admitted in this study hospital were males. This result was nearly similar to the study conducted by Chih-Cheng Lai in China Severe acute respiratory syndrome coronavirus 2, the epidemic and the challenges (2).

Understanding the clinical symptoms of COVID-19 is important, although the clinical symptoms are indicated nonspecific.74.2% of the patients admitted to this study treatment facility were symptomatic. The major symptoms observed in positive patients were intense fatigue or abnormal state of drowsiness, cough, difficulty of breathing, loss of appetite, headache, muscular pain, and chest pain. These findings were corroborated with the findings of ZU et al common symptoms include fever, cough, myalgia, and fatigue. Patients may initially present with diarrhea and nausea a few days before developing a fever, which suggests that fever is dominant but not the premier symptom of infection (11).

Thirty-two % of the patients who were admitted in the treatment center of this study were having headache. This result shows a great difference with a study conducted in Rocha-Filho in which64 % of the patient presented with headache, which generally began at the onset of symptoms, was bilateral, of moderate or severe intensity, throbbing and with a migraine phenotype (12).

Forty-three percent of the patients is having one or more comorbidities, from the patients having comorbidities 25 (50%) were hypertensive. This result has as low as (65.4%) the study conducted by Zhang et al in six regions of China. followed by diabetes mellitus 21 (40%) (10).

4. Conclusion

All patients received the recommended antibiotic therapy. Patients on intubation are getting sedation but adequacy not assessed. Dexamethasone, ulcer prophylaxis, NGT feeding were given to critically ill patients. Poor documentation. PCR test results were not attached to the patient chart. Progress notes (asymptomatic and mild symptomatic patients despite long stay there is no any progress note). Most of the patients have no discharge summary.Pain assessment was not done to all patients. Death summary were not appropriately documented. Clinical pharmacy assessments were not done.

5. Recommendation

Patients on intubation should be critically followed and the adequacy of sedation should be assessed properly. Documentation system should be improved and nursing care activities should be documented on patient chart.

6. Competing Interests

There is no competing interest with the presented data as external data collectors collected it. There was no financial interest between the funder and the research area community and us. We have no any form of competing financial and non-financial interest between ourselves.

7. Authors' Contributions

The three authors have made significant contribution in the proposal development, data collection and data analysis and manuscript preparation process of this work.

8. Acknowledgments

We are grateful to Wachemo University Negisteleni Mohamed comprehensive specialized hospital staffs who were participated in the diagnosis and treatment of COVID-19 patients. Our thanks go to Nigist Eleni hospital clinical governance and quality improvement unit staffs for data collection. Leaders of Nigist Eleni Mohammed memorial hospital for the permission to conduct this study.

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