

Review paper on COVID-19 based on recent scenario

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Abstract: In December 2019, a bunch of patients with pneumonia of strange source was correlated to a seafood market in Wuhan, China. An earlier unknown virus that is coronavirus was found throughout the exploit of impartial sequencing in samples from people. Individual airway epithelial cells that come from surface such as skin, blood vessels, organs etc. were used to separate a coronavirus, named 2019-nCoV, which formed a species within the subfamily. Dissimilar from both MERS-CoV and SARS-CoV, 2019-nCoV is the seventh member of the family of coronaviruses that infect humans. Superior observation and advance search are ongoing.

Introduction: The name corona virus is derived from the Latin word “Corona”, which means crown. While testing the virus under microscope, the virus looks like a crown or solar corona. Coronavirus (COVID-19) was initially reported in Wuhan City in China in December 2019, now it has spread various countries in the world.

Coronaviruses, a genus of the *Coronaviridae* family, are enveloped viruses with a large plus-strand RNA genome. The genomic RNA is 27–32 kb in size, capped and polyadenylated. Three serologically distinct groups of coronaviruses have been described. Within each group, viruses are characterized by their mass range and genome series. Coronaviruses have been identified in different animals like cockroaches, rats, chickens, turkeys, swine, dogs, cats, rabbits, horses, cattle and humans etc and can cause a various rigorous disease [10]

According to World Health Organization, Corona virus is family virus that causes sickness ranging from normal fever to severe diseases like SARS (Severe Acute Respiratory Syndrome) and MERS (Middle East Respiratory Syndrome). The corona virus is transmitted from animal to human being through air then human to human.

The 2019-nCoV has a different coronavirus-specific nucleic acid sequence from known human coronavirus species, which are similar to some of the beta coronaviruses identified in bats. The virus-specific nucleic acid sequences were detected in lung fluid, blood and throat swab samples in 15 patients and the virus that was isolated showed a typical coronavirus appearance under electron microscopy. Further research will be conducted to better understand the new coronavirus to develop antiviral agents and vaccines. [1]

On Jan 30, 2020, World Health Organization confirmed the recent coronavirus disease 2019 outbreak a Public Health Emergency of worldwide Concern. As of Feb 11, 2020, 42708 cases in China has been registered and spread to many countries like Germany, France, Japan, Malaysia, Singapore, South Korea, Spain, Thailand, Vietnam, the United Arab Emirates, the UK, and the USA. All continents provide confirmation about the cases affected by COVID-19. Numerous methods have already been implemented to avoid and control of spreading that virus among people. [4]

This epidemic coronavirus is not only spread this time but also spread in various countries in 2005, 2012. This time it spread like a fire. Most of the countries in the world get affected by this novel coronavirus. Initially it starts from China and nearby countries but now a day's whole countries in the world have symptoms of that particular virus. Government of various countries use safety measures to protect their citizen from this epidemic disease i.e. CoV. Government announced the shutdown of schools, colleges, cinema halls, shopping malls etcetera to avoid gathering because it is a communicable disease spread from people to people.

Symptoms: The virus seems to be start with normal fever then followed by dry cough and then after a week it leads to shortness of breath (respiratory disorder). The various symptoms are fever, chest pain, rapid heartbeat, sore throat, breathing difficulties; Kidney Failure, Cough, Headache and muscle ache etc. Infection with 2019-nCoV was confirmed based on the patient's epidemiological history, clinical manifestations, imaging characteristics, and laboratory tests. [3]

Prevention: There is no vaccination is discovered to protect against this deadly virus but research is underway. The US National Institutes of Health is still working to find the vaccination which help people to cure from this harmful virus. According to researchers, various clinical tests are performed on blood sample in different laboratories but still they are not able to find the proper vaccination against corona virus, it will take time to discover the vaccination. [2]

Following are the effective measures to protection yourself from the corona virus.

1. Clean your hands with soap and water or alcohol based hand wash.
2. Cover your nose and mouth with disposable mask, when coughing or sneezing.
3. Avoid close contact with anybody having cold like symptoms.
4. Avoid close contact with farm animals.

Suggestion for outdoor patient care :

The crucial values of IPC and standard protection must be applied in all health care services, including outpatient care and primary concern [9]. For 2019-nCoV infection, the following measures must be adopted:

1. triage and early recognition;
2. prominence on hand cleanliness, respiratory cleanliness and medical masks to be used by patients with respiratory symptoms;
3. suitable use of contact and droplet protection for all suspected cases;
4. prioritization of care of symptomatic patients;
5. when indicative patients are required to wait, ensure they have a separate waiting area;
6. Alert patients and families about the early detection of symptoms, basic precautions to be used and which health care facility they should refer to.

Coronaviruses are a family of enveloped, single-stranded, positive-strand RNA viruses classified within the Nidovirales order. This coronavirus family consists of pathogens of many animal species and of humans, including the recently isolated severe acute respiratory syndrome coronavirus (SARS-CoV) [12]. The virus replicates not only in the

epithelium of upper and lower respiratory area tissues, but also in various tissues beside the alimentary tract and elsewhere example kidney, oviduct and testes. It can be detected in both respiratory and faecal material [13].

Table 1 describes about the various virus that were spread from different animals and harm the human life. As you see in the table Virus named as Marburg spread from bats in Uganda in 1967. Approximately 590 people get affected and from which had been 478 died. Similarly different virus and their affected are described in table given below. Among the entire virus Seasonal flu which is also called swine flu spread yearly in various areas.

Table1: Most Awful Epidemics in Current Record.

Virus	Year	Country of origin	Infected people	Death
Marburg (Bats)	1967	Uganda	590	478
Ebola (Bats)	1976	DRC	33,687	14,693
NIPAH (Owls)	1999	Malaysia	496	265
SARS (Camels)	2002	China	8098	774
HSNI-Bird Flu (Hens)	2003	China	861	455
A[HINI] Pamoq (Pigs)	200	US & Mexico	1 Million	123,000-203,000
MERS (Camels)	2012	Saudi	2494	858
H7N9 Bird Flu (Hen)	2013	China	1568	616
2019-nCoV (Bats)	2020	China	20,000	490+
Seasonal Flu (Hens)	yearly	-----	~ billion	290,000-650,000

Results: In this result analysis doctor’s analysis approximately 100 of patients. In which they found that two were couple. In this analysis approximately half of patients i.e. 50% people are those who were working at to seafood market of Huanan in China as salesman and managers and rest of people may be customers or their families who mostly visit the seafood market present in Huanan.

In table 2 describes that most of the patients were men with mean age of around 50 – 55 years who works in the market. None of the patient was medical staff who worked in the hospital i.e. doctors, nurses or any auxiliary staff. When people start feeling sick like fever, cold and cough they visit to the hospital. When they admitted in the hospital, doctor’s analysis that most of the patients suffered from fever and dry cough etcetera and some of them had breathing problem. Other symptoms included chest pain, rapid heartbeat, sore throat and muscle ache and they

start treating them. After sometime doctor’s come to know that they people are suffering from deadly disease called coronavirus.

Table 2(a)

Patient (Approx 100)		
Age	Mean 55 year	
Sex	Male	68%
	Female	32%
Occupation	Agricultural Work	2%
	Self-Employed	64%
	Employee	15%
	Retired	19%
Exposure to Huanan Seafood Market	Long-term exposure history	47%
	Long-term exposure history	2%
Medical Illness	Cardiovascular and cerebrovascular diseases	40%
	Digestive system disease	11%
	Endocrine system disease	13%
	Malignant Tumour	1%
	Nervous system disease	1%
	Respiratory system disease	1%
Admission to ICU	23%	
Clinical Outcomes	Remained in hospital	58%
	Discharged	31%
	Died	11%

Table 2(b)

Patient (Approx 100)	
Signs and symptoms while admitted	
Fever	83%
Cough	82%
Breathing Problem	31%
Muscle Ache	11%
Chest pain	2%
Sore throat	5%
More than one sign symptoms	89%

Table 3 describes the analysis of various patients who are infected by epidemic disease i.e. CoV. In this table record of 41 patients has been analysed by doctor’s from which 13 are those who are very serious and need extra care and admitted in intensive care unit and rest of patients are those who are in initial stage are isolate from other patients who are very serious and reside under non intensive care unit. Various tests have been performed on them and try to cure them from deadly disease. The different symptoms like Acute respiratory distress Sundrome,Cycle Threshold of RNAemia, Acute Cardiac injury andAcute kidney injury etcetera has been mentioned and the outcome from that 41 patients is described in the following table [6].

Table 3: Treatment and outcomes of patients infected with corona virus

	All Patients (n=41)	ICU Care (n=13)	Non ICU Care (n=28)	P Value
Duration from illness onset to first admission	7.0 (4.0-8.0)	7.0 (4.0-8.0)	7.0 (4.0-8.5)	0.87

Complications				
Acute respiratory distress Sundrome	29%	85%	4%	<0.0001
RNAemia	15%	15%	14%	0.93
Cycle Threshold of RNAemia	35.1 (34.7-35.1)	35.1 (35.1-35.1)	34.8 (34.1-35.4)	0.35
Acute Cardiac injury	12%	31%	4%	0.017
Acute Kidney injury	7%	23%	0	0.027
Secondary infection	10%	31%	0	0.014
Shock	7%	23%	0	0.027
Treatment				
Antiviral Therapy	93%	92%	93%	0.46
Antibiotic Therapy	100%	100%	100%	NA
Use of Corticosteroid	22%	46%	11%	0.013
Continuous renal replacement therapy	7%	23%	0	0.027
Oxygen Support <0.0001				
Nasal cannula	66%	8%	93%	
Non-invasive ventilation or high flow nasal cannula	24%	62%	7%	
Invasive mechanical ventilation	5%	15%	0	
Invasive mechanical ventilation and ECMO	5%	15%	0	
Prognosis 0.014				
Hospitalisation	17%	8%	21%	
Discharge	68%	54%	75%	
Death	15%	38%	4%	

Table 4 describes the survey report of patient those who are affected by novel disease coronavirus of different countries around the world. This disease initially starts spreading from Wuhan city named in China and slowly spread into the various countries. Daily different cases are introduced and doctors try cure the patients and scientist do different experiments and research so that they can find antidote of that disease and save the human life from this deadly disease name CoV-2019. China is a country who is mostly affected by this disease, as you see in the table maximum cases are found in china [7]. Government of china has announced to kill the patients who are non curable so that they are not affected the other patient and doctors save their valuable life.

Table 4: Latest Country wise report of patients

Country, Others	Total cases	New Cases	Total Deaths	New Deaths	Total Recovered	Serious Critical
China	78,832	+335	2,788	+44	36,184	7,952
S. Korea	2,022	+256	13		24	18
Diamond Princess	705		4		10	36
Italy	655		17		45	56
Iran	245		26		54	
Japan	214		4		32	13
Singapore	96				66	8
Hong Kong	92		2		18	6
USA	60				6	
Germany	49				16	2
Kuweit	43					
Thailand	40		2		22	2
France	38		1		11	1
Bahrain	33					
Taiwan	32				5	1
Spain	25				2	2
Australia	23				15	
Malaysia	22				20	
U.A.E	19				5	2
U.K	16				8	
Vietnam	16				16	
Canada	14				3	
Macao	10				6	
Switzerland	8					
Iraq	7					
Sweden	7					
Oman	6					
Austria	5					
Norway	4					
Philippines	3		1		2	
Croatia	3					

Greece	3					
India	3	+2			3	
Israel	3					
Lebanon	3					
Finland	2				1	
Pakistan	2					
Russia	2				2	
Afghanistan	1					
Algeria	1					
Belgium	1				1	
Cambodia	1				1	
Denmark	1					
Egypt	1				1	
Nepal	1				1	
Brazil	1					
Cambodia	1				1	
Estonia	1					
Georgia	1					
Lithuania	1	+1				
North Macedonia	1					
Netherlands	1					
Nigeria	1	+1				
Romania	1					
San Marino	1					
Sri Lanka	1				1	

Table 5 describes the daily survey report of world health organization (WHO), in which record of diverseCountry/Territory/Areas has been mentioned. In this survey, WHO investigates the total regions who get infected by coronavirus and make a list of different areas, number of people who are infected, number of new cases and report of those patient who died due to coronavirus. Below table provides the detail of subtotal record of patient from all over the world in the month of February, who are confirmed by laboratory test and get COVID-19 positive.

Table 5: Survey of Countries, territories or areas outside China with reported laboratory-confirmed COVID-19 cases and deaths [8]

Date	Country/ Territory/ Area	Confirmed Cases (New)	Likely Place of Exposure			Total cases with site of transmission under investigation (new)	Total deaths (new)
			China (New)	Outside reporting country and outside china	In reporting country (new)		
27/02/2020	Subtotal for all regions	2959 (732)	181 (2)	200 (71)	1005 (16)	1573 (643)	53 (12)
	International Conveyance	705 (14)	0 (0)	0 (0)	0 (0)	0 (0)	4 (1)
	Grand Total	3664 (746)	181 (2)	200 (71)	1005 (16)	1573 (643)	57 (13)
26/02/2020	Subtotal for all regions	2227 (459)	179 (0)	131 (37)	9888 (7)	929 (415)	41 (10)
	International Conveyance	691 (0)	0 (0)	0 (0)	0 (0)	691 (0)	3 (0)
	Grand Total	2918 (459)	179 (0)	131 (37)	9888 (7)	929 (415)	44 (10)
25/02/2020	Subtotal for all regions	1768 (390)	0 (0)	94 (38)	981 (55)	514 (347)	31 (11)
	International Conveyance	691 (0)	0 (0)	0 (0)	0 (0)	691 (0)	3 (0)
	Grand Total	2459 (390)	179 (0)	94 (38)	981 (5)	1205 (347)	34 (11)
24/02/2020	Subtotal for all regions	1374 (239)	179 (0)	52 (3)	862 (139)	281 (97)	20 (5)
	International Conveyance	695 (61)	0 (0)	0 (0)	0 (0)	695 (61)	3 (1)
	Grand Total	2069 (300)	179 (0)	52 (3)	862 (139)	976 (158)	23 (6)
23/02/2020	Subtotal for all regions	1135 (367)	178 (1)	48 (4)	578 (94)	331 (268)	15 (6)
	International Conveyance	634(0)	0 (0)	0 (0)	0 (0)	634 (0)	2 (0)
	Grand Total	1769 (367)	178 (1)	48 (4)	578 (94)	965 (268)	17 (6)
22/02/2020	Subtotal for all regions	768 (202)	177 (2)	44 (24)	484 (163)	63 (13)	9 (0)
	International Conveyance	634 (0)	0 (0)	0 (0)	0 (0)	634 (0)	2 (0)
	Grand Total	1402	177	44	484	697	11

		(202)	(2)	(24)	(163)	(13)	(3)
21/02/2020	Subtotal for all regions	566 (114)	175 (0)	20 (4)	320 (95)	51 (15)	6 (0)
	International Conveyance	634 (13)	0 (0)	0 (0)	0 (0)	634 (13)	2 (0)
	Grand Total	1200 (127)	175 (0)	20 (4)	320 (95)	685 (28)	8 (0)

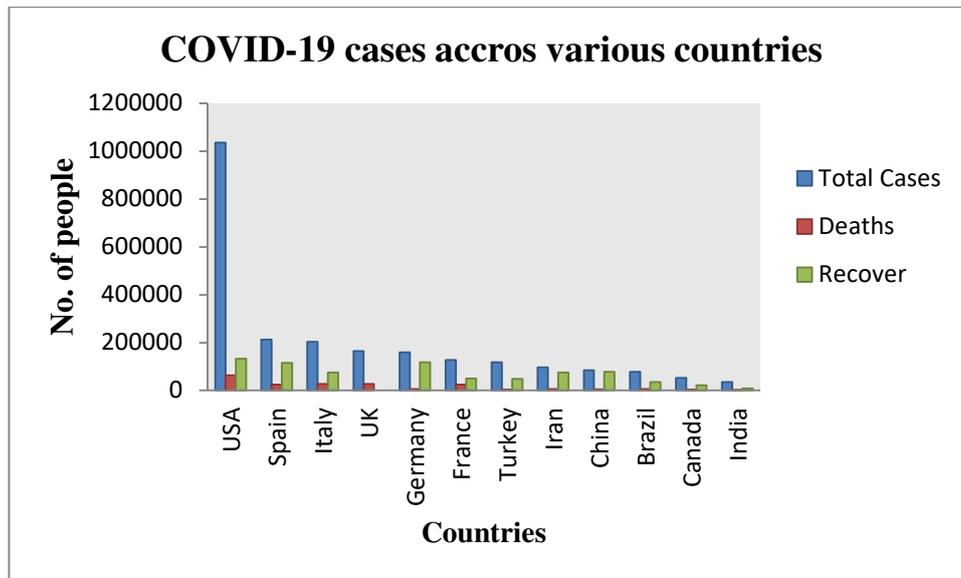
History:Coronavirus is not a new virus, it has a history in comes in various courtiers in past years. According to research, In January 2003, a 7-month-old baby was admitted to the hospital and having a symptoms like catarrhal inflammation of the mucous membrane in the nose, caused especially by a cold or by hay fever, which is names as coryza.After that chest radiography was done and revealed typical features of bronchiolitis. A nasopharyngeal aspirate specimen was collected 5 d after the onset of disease. Diagnostic tests for respiratory syncytial virus, adenovirus, influenza viruses A and B, parainfluenza virus types 1, 2 and 3, rhinovirus, enterovirus, HCoV-229E and HCoV-OC43 yielded negative results. The clinical sample was subsequently inoculated onto human fetal lung fibroblasts, tertiary monkey kidney cells and HeLa cells. CPE was detected exclusively on tertiary monkey kidney cells, and was first noted 8 d after inoculation. The CPE was diffuse, with a refractive appearance in the affected cells followed by cell detachment. More pronounced CPE was observed upon passage onto the monkey kidney cell line LLC-MK2, with overall cell rounding and moderate cell enlargement [10]. After that similar virus was spread during summers of 2012, in Jeddah, Saudi Arabia, a hitherto unknown coronavirus (CoV) was isolated from the sputum of a patient with acute pneumonia and renal failure. The isolate was provisionally called human coronavirus Erasmus Medical Center (EMC). Soon thereafter, in September 2012, the similar type of virus, named human coronavirus was found in England was recovered from a patient with severe respiratory illness who had been transferred from the Gulf region of the Middle East to London, United Kingdom. The onset of the new disease was traced back to an even earlier time point. Already in April 2012, a cluster of pneumonia cases in health care workers had occurred in an intensive care unit of a hospital in Zarqa, Jordan. Two persons died, both of whom were confirmed to have been infected with the novel coronavirus through a retrospective analysis of stored samples [12].

Result Analysis:Table 6 provides the detail about COVID-19 confirmed case dated 1 may 2020 according to the report of world health organization. These cases increases day by day in all of the countries. The various regions of the countries are divided into the different zones according to COVID-19 affected cases like red zone, green zone and orange zones. According to the following table USA is on the top of the list where India is at bottom.

Table 6: Confirmed cases of COVID-19

Country	Total Cases	Deaths	Recover
USA	1035353	63746	133000
Spain	212917	24824	115000
Italy	203591	27967	75945
UK	165225	26771	-----
Germany	159119	6623	118000

France	127066	24367	49476
Turkey	117589	3174	48886
Iran	96640	6028	75103
China	84385	4643	77642
Brazil	78162	6006	35935
Canada	52056	3184	21423
India	35043	1147	8889



Impact on Economy of world: COVID-19 has a huge impact on economy of all over the world. Government of every country announced lockdown to save their people from COVID-19. COVID-19 is a communicable disease so business, college, universities, schools, shops etc are closed to avoid gathering which has great impact on the economy of the world. Many people die due to corona virus but some poor people die due to hunger also. Government of all countries help their people to supply food and necessary item but still there are some people who do not get food. In these days government employee get their salaries but question is that what about business man? How he/she get money to feed his/her family? Colleges, universities start converting into quarantine centres because of shortage of hospitals in various regions

Education System: COVID-19 has a great impact on education system as well. Students are not able to go to schools, colleges and universities. So the government suggest that educational organizations provide education through E-learning system. Now a day’s students start learning through electronic gadgets, they attend their regular classes and get assignments from various mobile apps so that they continue their studies in these critical days as well.

Conclusion: In this paper, we discussed about the epidemic disease named as coronavirus. Coronavirus initially start spreading from Wuhan in china and slowly in passes from country to country and now people from all over the world gets affected from deadly disease. This paper discuss about result analysis of affected people, history, symptoms and safety measures use to protect from this virus.

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