

A Quick Evaluation on COVID-19: A Remarkable Situation to Public Fitness

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Abstract—Very lately a singular coronavirus, SARS-CoV-2, become recognized because the causative agent of a virulent disease of viral pneumonia targeted round Wuhan, Hubei, China in Dec 2019, now referred to as as COVID-19. In this article, the modern-day understanding of lethal, pandemic human coronavirus SARS-Cov2 (COVID-19), with unique connection with its zoonosis, susceptibility, and distinctive techniques to expand its therapeutics, may be discussed

Index Terms- SARS, MERS, COVID-19

Abbreviations: CoV: corona virus; cdc: centres for ailment manage and prevention, WHO: international fitness organisation, SARS: Severe acute respiration syndrome; NIH: countrywide institute of fitness, NIAID: countrywide institute of allergic reaction and infectious diseases, NHSS: countrywide fitness safety strategy, IFN: Interferon, MERS: Middle east respiration syndrome, HCoV: Human corona virus.

I. INTRODUCTION

The first excessive acute respiration syndrome coronavirus (SARSCoV) outbreak in China (in 2003), which spreads out in 29 nations to this point and inflamed approximately 9000 human beings with extra than 10% mortality [1]. Soon after 5 extra human coronaviruses (HCoV-229E, HCoV-HKU1, HCoV-NL63, and HCoV-OC43) are determined additionally to be related to a number respiration symptoms, along with high-morbidity consequences consisting of pneumonia and bronchiolitis [2]. In 2012, any other virus MERS CoV (Middle East Respiratory Syndrome coronavirus), become remoted from a affected person with pneumonia in Saudi-Arabia [3].

However, a totally current outbreak of a extra excessive acute respiration syndrome (SARS)- related coronavirus (SARS-CoV-2) which one reasons COVID-19 ailment, a maximum involved factor, now-a-days, to human fitness. Not best the fitness however it triggered a catastrophe in human social, monetary and lots of different components of life, being the ailment is especially infectious and deadly too. (Several Review via way of means of CDC, WHO, NIH, etc). In fact, Sars-CoV-2 is originated on twenty sixth December 2019 at Wuhan town of China, and reasons a life-threatening pneumonia, and is the maximum pathogenic human coronavirus recognized to this point [4]. No statistical statistics at this factor might be best for the

reason that ailment development in addition to mortality price is growing at an exponential price. As of April 4th, 2020, in keeping with CNN reports, the global inflamed instances are approximately 1,192,028; Deaths 64,316. In USA, inflamed instances are 308,533 and loss of life 8,376.

II. STEPS FOR PAPER SUBMISSION

A. Study Design

Sources of Corona Virus and Zoonosis, Diagnosis of Corona Virus in Human; Approach for Finding Therapeutics, had been highlighted.

B. Results

The zoonosis **proven** in Table 1. Preventive measures till right medicinal drug is to be had proven in Table 2

III. ORIGIN FOR CORONA VIRUS AND ZOOZOSIS

Sars-CoV-2 like different human corona virus, MERS-CoV, SARSCoV, has is originated from Bats [5]. The zoonosis has proven in Table 1. Like Flu virus, SARS-CoV-2 are succesful to contaminate the respiration device, and facilitating the unfold thru coughing and sneezing, specifically to the immune-compromised and the aged human beings [6], However, not like to different not unusualplace bloodless or hypersensitivity issues, SARS-CoV-2 assault in particular decrease respiration tract, and consequences lethal Pneumonia [7]. No medication is there yet, both manage and/or cure, however best numerous efforts for prevention.

IV. RECOGNITION OF CORONA VIRUS IN HUMAN

A Chest radiography well-known shows standard function of bronchiolitis. Recognition of unknown pathogens via way of means of the usage of molecular biology gear appears difficult, while genome-particular PCR primers may be designed for RT-PCR analysis. The life of restrict enzyme fragment period polymorphism (RFLP) also can be done. The CDC and NIAID each evolved a check to diagnose COVID-19 in respiration and serum samples from scientific specimens [5,8].

TABLE 1 - Corona virus – fundamentals

Table-1: Comparison of Novel Corona Virus (COVID-19) with SARS and MERS:			
			
Virus	SARS	MERS	COVID 19
Full Name	Severe Acute Respiratory Syndrome	Middle East Respiratory Syndrome	Wuhan Coronavirus (2019nCov) [4]
Origin	2003 in China [3]	2012 in Middle East, Africa and South Asia [3].	2019 in China (Wuhan) [4].
Confirmed cases	8,437 in 29 Countries [1]	2,494 in 27 Countries as of Nov 30, 2019 [3]	>130,000 as of Mar 12, 2020 in 46 countries [13]
Death Rate (as of March 7, 2020)	>10%	>35%	3%
Zoonosis	Bat > Palm Civet > Human [5].	Bat > Dromedary Camel > Human [5].	Bat > ?? > Human (Not known yet)
Symptoms	Fever, Shortness of Breath, Cough	Fever, Cough and Shortness of Breath	Fever, Cough and Shortness of Breath
Diagnosis	Diagnosis procedures are same for all those, three, and they include, along with the above symptoms the RT PCR to detect virus in stool, blood and nasal fluid, and Serological test for virus antibodies in the blood [5,8,13].		
Treatment	No antiviral therapy yet, only supportive and prevention strategy are advised. Vaccines are at an stage of development.		

Table-1: Comparison of Novel Corona Virus (COVID-19) with SARS and MERS:			
			
Virus	SARS	MERS	COVID 19
Cell Line Susceptibility	Respiratory tract; kidney; liver.	Respiratory tract; intestinal tract; genitourinary tract; liver, kidney, neurons; monocyte; T-lymphocyte; and histiocytic cell lines.	
Ability to inhibit IFN production	Delayed recognition and proinflammatory response.		Not defined yet
Viral Replication Efficiency	High [9]	High [9]	Higher [9]
Predominant Receptor	Human Angiotensin (ACE2)	Converting Enzyme	Human Dipeptidyl Peptidase (DPP4 CD26)
Receptor Distribution	Arterial and venous endothelium; small intestine; respiratory tract monocytes and macrophages.	Respiratory tract; kidney; small intestine; liver and prostate; leukocytes	Not defined yet

Table 2 - Covid-19: Protection and prevention (Sources: CDC, WHO, NIH, YNH)

COVID-19: Protection and Prevention (Sources: CDC, WHO, NIH, YNHHS)	
Table-2	Protection and Prevention
Q#1	Can flu and coronavirus infect at the same time? Possible.
Q#2	How about warm weather may stop the COVID-19 infection? Some viruses, like the common cold and flu, spread more when the weather is colder. But it is still possible to become sick with these viruses during warmer months. At this time, we do not know whether the spread of COVID-19 will decrease when the weather warms up.
Q#3	How to prevent COVID-19 infection ? <ul style="list-style-type: none"> • Limit contact with people showing symptoms of any respiratory infection. • Practice good hygiene to prevent bacteria and viruses from spreading. • Stay at least 6 feet away from anyone who is coughing or sneezing. • Use disinfectants on objects like phones, computers., etc.
Q#4	How to increase the strength of immune system? Immune system is the body's defense system. These are some to keep our immune system strong and healthy. <ul style="list-style-type: none"> • No smoking. • Eat a diet high in fruits, vegetables, and whole grains. • Multivitamin • Exercise regularly • Maintain a healthy weight. • Control stress level; blood pressure; Alcohol drink in moderation • Get enough sleep.

Table-2 Contd. COVID-19: Protection/Prevention	
Q#5	How about going regularly to the work place in this situation? <ul style="list-style-type: none"> • If possible, <u>should stay at home, and work from home.</u> • If necessary to go into work, maintain 6 feet of distance from each other, and wash your frequently with soap and use sanitizer. • Avoid handshakes, switch in-person meetings to tele-conferences, and <u>disinfect the workspace with EPA-approved products</u> at the start of job.
Q#6	Whether self-isolation is needed if not diagnosed with COVID-19? <ul style="list-style-type: none"> • If returned from an area where an outbreak has been reported, stay home. • Adults 60 and older and people with severe chronic illnesses are very prone to get infected with Covid-19, so the <u>CDC recommends</u> those people should stay at home, specially where there are outbreaks.
Q#7	Why are we so worried about COVID-19, when the flu kills more people than COVID-19, at least so far? <ul style="list-style-type: none"> • Flu has antiviral drugs against, but nothing is available yet for COVID-19. • However, the protective and prevention procedure are same for COVID-19 and Flu, both.
Q#8	Should a face mask is essential? In reality, when you do not know who is the carrier, and also, when asymptomatic carrier can infect others, it is better to have your own protection. "I protect you, you protect me"

V. COVID-19 CAN BE A ON AND OFF ENDEMIC PATHOGEN

New Corona virus COVID-19 label via way of means of fevers, coughing, and every so often extreme lung infections, in time it could turn out to be part of the human respiration-virus repertoire and won't pass till the right vaccine is introduced.

VI. APPROACH FOR LOCATING REMEDIAL

Coronaviruses are labeled into 4 awesome phylogenetic groups, a-coronaviruses, b-coronaviruses and g-acoronaviruses which infect mammals, and d-coronaviruses infect avian species [9]. Among all regarded human coronaviruses (HCoV), SARS-CoV-2, like SARS-CoV and MERS-CoV belongs to a Î±-corona virus own circle of relatives reason Lower tune respiration problems, while others belong to Î±-kind reason best moderate higher tune contamination. No precise remedy is presently to be had for human coronaviruses to date, however the use of the genome understanding from six formerly located human coronaviruses, the investigators are inspecting the development of the use and improvement of healing drugs, focusing at the capacity roles of virus inhibitors [10]. The innate immune device has a first-rate shielding function because the first line of protection in opposition to respiration pathogens. The Receptor determinant recognized as N-acetyl-9-O-acetylneuraminic acid or O-Acetylated Sialic acid interferon (IFN) device orchestrates masses of various mobile effector proteins that defend the epithelial barrier via way of means of changing the physiological and mobile environment, and additionally impair virus propagation, unfold and transmission. In general, HCoVs do now no longer elicit a sturdy innate immune reaction in number one goal cells of the human airway early all through contamination. Despite the presence of all principal pathogen popularity receptors, no increased expression of IFN beta, pro-inflammatory cytokines or interferon inspired genes may be discovered as much as 12 h post-contamination in HAEs inflamed with HCoV-229E, MERS- or SARS-CoVs [11]. This is maximum in all likelihood because of the intrinsic CoV homes harbored withinside the replicative non-structural proteins that actively useful resource in keeping off popularity via way of means of the host innate immune are capped making them indistinguishable from the host mobile mRNAs and not detectable via way of means of mobile sensors. Vaccines the use of the spike proteins of each SARS- and MERS-CoVs have verified shielding in animal models [12], suggesting that a vaccine in opposition to HCoVs for human use is probably achievable treatments in opposition to COVID-19 will become to be had, we have to depend upon safety measure that we've displayed withinside the Table 2.

VII. CONCLUSION

Studies with many HCoVs specify that HCoVs such as COVID-19 can be greater clinically critical withinside the immune-poor and aged humans. Since vaccines aren't to be had for any of those respiration viruses so we want to display epidemic styles and investigate the unfold of respiration infections to effectively identify, manage and save you epidemics. A complete take a look at of COVID-19, each genomics and proteomics is wanted to recognize the contamination mechanism and right drug design. Moreover, destiny experiments with greater touchy diagnostic gear ought to publish a greater correct photo of the superiority of this virus (COVID-19) and its correlation with respiration diseases.

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