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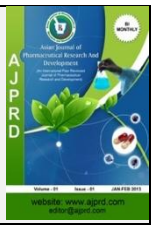

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Review Article

Coronavirus Disease-2019 (COVID-19): An Overview

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A B S T R A C T

There is a new public health crises threatening the world with the emergence and unfold of two019 novel coronavirus (2019-nCoV) or the severe acute metabolism syndrome coronavirus two (SARS-CoV-2). COVID-19 is a spread of coronavirus is the family Coronaviridae. The malady is believed to originate from crackers Associate in Nursing was unfold to people through unknown medium in an exceedingly town, China. Severe acute metabolism syndrome coronavirus 2 (SARS- CoV-2) could also be a very transmissible and infective coronavirus that emerged in late 2019 and has caused an outbreak|avirus|a virulent disease|a pestilence} of acute disease, named, 'coronavirus malady 2019' (COVID-19), that threatens human health and public safety. throughout this Review, we have a tendency to to tend to explain the essential medicine of SARS- CoV-2, together with genomic characteristics, and receptor use, lightness its key distinction from antecedent acquainted coronaviruses. we have a tendency to to tend to summarize current data of clinical, medicine, and pathological choices of COVID-19, additionally as recent progress in animal models, and antiviral treatment approach for SARS- CoV-2 infection. we have a tendency to to tend to to boot discuss the potential life hosts and disease origin of this rising virus well.

Keywords 2019-nCoV COVID-19 eruption, SARS-CoV-2 Novel coronavirus

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INTRODUCTION

The two019 novel coronavirus (2019-nCoV) or the severe acute metabolism syndrome corona virus two (SARS-CoV-2) as a result of it's presently remarked as, is quickly spreading from its origin on metropolis city of Hubei Province of China to the rest of the world. Origin SARS-CoV-2 could also be a member of the family Coronaviridae and order Nidovirales[1]. The family consists of two sub-families, Coronaviridae and arbovirus and members of the taxon Coronavirinaeare divided into four genera: (a) Alphacoronavirus contains the human coronavirus (COV)-229E ndHCoV-NL63; (b)Betacoronavirus includes HCoV-OC43, Severe Acute metabolism Syndrome human coronavirus (SARS-CoV), HCoV-HKU1, and geographical region metabolism syndrome coronavirus (MERS-CoV); (c)Gammacoronavirus includes viruses of whales and birds, and; (d)Deltacoronavirus includes viruses isolated from pigs and birds.SARS-CoV-2 belongs to Betacoronavirus at the side of two extraordinarily infective viruses, SARS-CoV and MERS-CoV. SARS-CoV-2 is Associate in Nursing engulfed and positive-sense fiber RNA (+SS RNA) virus[2].SARS-CoV-2 is taken under consideration a singular human-infecting Betacoronavirus. The coronaviruses are seen below the magnifier as a result of it possesses a crown-like look. Ideally, the full spreading and associated health risks of the malady build it's a very important agent[3]. Primarily, human kinds of coronavirus square measure joined to minor clinical symptoms. At an equivalent time, the world Health Organization (WHO) have conducted studies and work analysis to identify the new strain of COV, selected as COVID-19. On the alternative hand, the International Committee on Taxonomy of Viruses spoken the disease-causing virus as a result of the SARS-CoV-2 virus[4].

Origin and of covid-19

In Gregorian calendar month 2019, adults in urban center, capital town of Hubei province and a serious transportation hub of China started presenting the native hospitals with

severe respiratory disorder of unknown cause[5]. Similarly to patients with respiratory disorder and MERS, these patients showed symptoms of viral infection, as well as fever, cough and chest discomfort, and in severe cases dyspnea and bilateral respiratory organ infiltration[6]. Among the primary twenty-seven documented hospitalized patients, most cases were epidemiologically connected to Hunan, food, Wholesale, Market, a wet market settled in downtown urban center, that sells not solely food however additionally live animals, as well as poultry and life. In keeping with a retrospective study, the onset of the primary famous case dates back to eight Gregorian calendar month 2019[7]. On, thirty-one Gregorian calendar month, urban center Municipal Health Commission notified the public of a respiratory disorder irruption of unidentified cause and advised the global Health Organization (WHO)[8]. By mutagenic polymer sequencing and virus isolation from bronc alveolar irrigation fluid samples from patients with severe respiratory disorder, freelance groups of Chinese scientists known that the causal agent of this rising wellness may be a beta coronavirus that had no, 'er been seen before. On nine Jan, 2020, the results of this etiological identification was in public proclaimed. The primary order sequence of the novel coronavirus was revealed on the medical specialty website on ten Jan, and a lot of nearly complete order sequences determined by totally different analysis institutes were then discharged via the GIS AID information on twelve Jan. Later, a lot of patients with no history of exposure to Hunan food Wholesale Market were known[9]. Many familial clusters of infection were according, and healthcare facility infection additionally occurred in health- care facilities. Of these cases provided clear proof for human- to- human transmission of the new virus. Because the irruption coincided with the approach of the satellite year, travel between cities before the pageant expedited virus transmission in China[10].

Epidemiology and pathologic process

All ages area unit vulnerable. Infection is transmitted through giant droplets generated throughout coughing and inborn reflex by symptomatic patients. However, can even occur from symptomless individuals, and before onset of symptoms[11]. Like most alternative members of the coronavirus family, Beta-coronavirus exhibit high species specificity however refined genetic changes will considerably alter their tissue response, host range, and echogenicity[12]. A hanging example of the ability of those viruses is the emergence of deadly animal disease diseases in human history caused by SARS-CoV and MERS-CoV. In each virus, nutty served because the natural reservoir and humans were the terminal host with the civet cat and Arabian {camel|Camelsdromedaries|camel} camel the negotiator host for SARS-CoV and MERS-CoV, severally. Intermediate hosts clearly play a crucial role in cross species transmission as they will facilitate accrued contact between a plague and a brand-new host and modify more adaptation necessary for a good replication within the new host[13]. Thanks to the pandemic potential of SARS-CoV-2, careful police work is vastly necessary to observe its future host adaptation, infectious agent evolution, inactivity, transmissivity, and echogenicity. As of March 2020, the World Health Organization proclaimed their area unit regarding eighty-seven,317 cases of COVID- nineteen globally further as confirmed cases of deaths is two,977. The period varies from 2 to14 days. Therefore, COVID-19 accumulative incidence differs betting on the country and incidences are confirmed in most continents[14,15].

Clinical features

The clinical options of COVID-19 area unit varied, starting from symptomless state to acute metabolism distress syndrome and multi organ dysfunction. This disorder is classified betting on its severity, and this embrace delicate, moderate, severe, and significant. The shared symptoms of people with the wellness embrace fever (98.6 percent), temporary state (69.6 percent), dry cough, and mobility of the bowels[16].

- Mild health problem
- Moderate health problem
- Severe health problem
- Acute metabolism distress syndrome
- Sepsis and septic shock

The diagnosis

A suspect case is outlined together with fever, pharyngitis, and cough WHO has history of travel China or different areas of persistent native transmission or contact with patients with similar travel history or those with confirmed COVID-19 infection[17]. But cases is also symptomless or perhaps while not fever. A confirmed case may be a suspect case with a positive molecular take a look at. Efforts to regulate unfold of COVID-19, institute quarantine and isolation measures, and fittingly clinically manage patients all need helpful screening and diagnostic tools[18]. Whereas SARS-CoV-2 is spreading, different metastasis infections is also a lot of common in a very area people. The WHO has free a tenet on case police investigation of COVID-19 on Gregorian calendar month thirty-one, 2020[19]. For individual WHO meets bound criteria, WHO recommends to 1st screen for a lot of common causes of respiratory disorder given the season and placement. If a negative result's found, the sample ought to be sent to referral laboratory for SARS-CoV-2 detection[20]. The samples are evaluated for microorganism polymer by means that of the enzyme chain reaction. Once the take a look in outcome shows positive, it's recommended to repeat the take a look at for the aim of verification. On the opposite hand, if the take a look at confirms negative, this warrant repeat testing. Also, chest X-ray and CT imaging are wont to determine COVID-19 in suspect people with adverse molecular designation[21].

Differential diagnosis

The medical diagnosis includes all sorts of metastasis microorganism infections [influenza, para influenza, metastasis synovial virus (RSV), adenovirus, human metapneumovirus, non COVID-19 coronavirus], atypical organisms (cytoplasm, chlamydia) and microorganism infections. It's unattainable to differentiate COVID-19 from these infections clinically or through routine workplace tests. Thus travel history becomes vital. However, because the epidemic spreads, the travel history can become immaterial[22].

Treatment

Is basically verification and symptomatic. The primary step is to make sure adequate isolation (discussed later) to stop transmission to different contacts, patients and tending employees. Delicate ill health ought to be managed reception with direction regarding danger signs[23]. The same old principles are maintaining association and nutrition and dominant fever and cough. Treatments kind of like MERS-CoV and SARS-CoV, there's still no specific antiviral treatment for COVID-19. Isolation and supportive care together with element medical care, fluid management, and antibiotics treatment for secondary microorganism infections is suggested. Some COVID-19 patients progressed quickly to respiratory disease and septic shock that was eventually followed by multiple organ's failure. Therefore, the hassle on initial management of COVID-19 should be addressed to the first recognition of the suspect and contain the illness unfold by immediate isolation and infection management measures[24]. The repetitive usage of antibiotics and antivirals, in the main oseltamivir, ought to be evaded among those with COVID-19 symptoms. This portrays there's no specific treatment for this complaint[25].

Vaccines

Vaccination is the only technique for a long- term strategy for interference and management of COVID-19 within the future. Many various immunogen platforms against SARS-CoV-2 area unit in development, the methods of that embrace recombinant vectors, DNA, RNA in lipid nanoparticles, inactivated viruses, live attenuated viruses and macromolecule subunits. As of two October 2020, ~174 immunogen candidates for COVID-19 had been reportable and fifty-one were in human clinical trials (COVID-19 immunogen and medical specialty tracker). Several of those immunogen candidates area unit in clinical test testing, and a few have already advanced to clinical test trials[26]. A randomized double- blind clinical test trial of AN animal virus sort 5- vectored immunogen expressing the SARS- CoV-2 S macromolecule, developed by will Sine Biological, and also the Academy of Military Medical Sciences of China, was conducted in 603, adult volunteers in urban center. The immunogen has proven to be safe and iatrogenic tidy body substance and cellular response in most recipients when one immunization. Another vectored immunogen, ChAdOx1, was developed on the idea of Pan troglodytes animal virus by the University of Oxford. During a randomized controlled part I/II trial, it iatrogenic neutralizing antibodies against SARS- CoV-2 altogether one,077 participants when a second immunogen dose, whereas its safety profile was acceptable further. The NSAID and Moderna co- factory-made mRNA-1273, a lipid nanoparticle- developed RNA immunogen candidate that encodes the stable perfusion SARS- CoV-2 S macromolecule. Its immunogenicity has been confirmed by a clinical test trial during[27]. which sturdy neutralizing protein responses were iatrogenic during a dose- dependent manner and accrued when a second dose. Concerning inactivated vaccines, a triple-crown part I/II trial involving 320 participants has been reportable in China. The whole-virus COVID-19 immunogen had a coffee rate of adverse reactions, and effectively iatrogenic neutralizing protein production. The verified safety and immunogenicity support advancement of those immunogen candidates to clinical test clinical trials, which is able to valuate their effectivity in protective healthy populations from SARS-CoV-2infection[28,29,30].

Prevention

Since at now there are not any approved treatments for this infection, interference is crucial. Many properties of this virus create interference troublesome particularly, non-specific options of the wellness, the infertility even before onset of symptoms within the period, transmission from well individuals, long period, reaction for membrane surfaces like the mucosa, prolonged period of the health problem and transmission even when clinical recovery[31,32,33]. There's no precise treatment for this wellness, interference is crucial. Within the 1st place, isolation of the suspected cases with the minor wellness reception is recommended. Again, correct ventilation with sensible daylight to destroy the virus is suggested reception. Further, people suspected to possess the wellness ought to be asked to wear a surgical mask and to practice cough hygiene. Primarily, tending staff ought to wear a surgical mask once within the same space as a shopper and utilize the hand hygiene in each quarter-hour. This can be as a result of the foremost important risk of the wellness is transmitted to tending professionals as they're those addressing patients on day to day[34,35].

CONCLUSIONS

This new virus irruption has challenged the economic, medical, and public health infrastructure of China and to some extent, of different countries particularly, its neighbors. The present COVID-19 pandemic is clearly a global public pathological state. There are fast advances in what we all know concerning the microorganism, however it infects cells and causes wellness, and clinical characteristics of wellness. COVID-19 irruption has challenged the majority sectors. Thanks to the unfold of the wellness at AN dreadful rate across the world. Notably, COVID-19 is AN RNA virus that poses a threat to public health. Currently, the unwellness has caused thousands of infections and deaths. Ideally, the fast unfold of the upset involves sturdy investigation, and isolation protocols to avert extra unfold. Basically, no confirmed medication or immunogen has been created to boost the health of patients with the condition. Therefore, people ought to take measures like isolation, correct ventilation, hand hygiene and use of non-public protecting instrumentation, principally surgical masks, eye protection, gloves, and robes to safeguard themselves from the wellness.

REFERENCES

1. Wang C, Horby PW, Hayden FG & GAO GF. A novel coronavirus outbreak of global health concern. Lancet, 1016/S0140-6736(20)3018:5-9.
2. Chan-Yeung M, Xu RH. SARS: epidemiology. Respirology, 2000; 8:S9–14.
3. Huang C, Wang Y, Li X, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet. 2020; 395: 497–506.

4. Hui DS, E IA, Madani TA, Ntoumi F, Kock R, Dar O, et al. The continuing 2019-nCoV epidemic threat of novel coronaviruses to global health – the latest 2019novel coronavirus outbreak in Wuhan, China. Int J Infect Dis 2020; 91:264–6.
5. Singhal TA Review of Coronavirus Disease-2019 (COVID-19). Indian J Pediatr, 2020; 87: 281-286.
6. Anjorin AA The coronavirus disease 2019 (COVID-19) pandemic: A review and an update on cases in Africa. Asian Pac J Trop Med, 2020; 13: 199-203.
7. Clerkin KJ, Fried JA, Raikhelkar J, Sayer G, Griffin JM, et al. COVID-19 and Cardiovascular Disease. Circulation, 2020; 141: 1648-1655.
8. Harapan H, Itoh N, Yufika A, Winardi W, Keam S, et al. Coronavirus disease 2019 (COVID-19): A literature review. Journal of Infection and Public Health, 2020; 13: 667-673.
9. Cheng VCC, Lau SKP, Woo PCY, Yuen KY Severe Acute Respiratory Syndrome Coronavirus as an Agent of Emerging and Reemerging Infection. Clinical Microbiology Reviews, 2007; 20: 660-694.
10. He F, Deng Y, Li W Coronavirus Disease 2019 (COVID-19): What we know? Journal of Medical Virology, 2020; 92: 1-12.
11. Brand S, Aziza R, Kombe I, Agoti C, Hilton J, et al. Forecasting the scale of the COVID-19 epidemic in Kenya. MedRxiv.org – the preprint server for Health Sciences, 2020; 1-20.
12. Altmann DM, Douek DC, Boyton RJ What policy makers need to know about COVID-19 protective immunity. Lancet, 2020; 395: 1527-1529.
13. Mehta P, McAuley DF, Brown M, Sanchez E, Tattersall R et al. COVID- 19: consider cytokine storm syndromes and immunosuppression. Lancet, 2020; 95: 1033-1034.
14. Padron-Regalado E Vaccines for SARS-CoV-2: Lessons from Other Coronavirus Strains. Infect Dis Ther, 2020; 9: 255-274.
15. Weiss SR, Navas-Martin S Coronavirus Pathogenesis and the Emerging Pathogen Severe Acute Respiratory Syndrome Coronavirus. Microbiol MolBiol Rev, 2005; 69: 635-664.
16. Cui, J., Li, F. & Shi, Z. L. Origin and evolutionof pathogenic coronaviruses. Nat. Rev. Microbiol, 2019; 17, 181–192.
17. Wu, J. T., Leung, K. & Leung, G. M. Nowcasting and forecasting the potential domestic and international spread of the 2019-nCoV outbreak originating in Wuhan, China: a modelling study. Lancet, 2020; 395, 689–697.
18. Hui, D. S. et al. The continuing 2019-nCoV epidemic threat of novel coronaviruses to global health – the latest 2019 novel coronavirus outbreak in Wuhan, China. Intl. J. Infect. Dis, 2020; 91, 264–266.
19. Deng, S. Q. & Peng, H. J. Characteristics of and public health responses to the coronavirus disease 2019 outbreak in China. J. Clin. Med, 2020; 9, 575.
20. Han, Q., Lin, Q., Jin, S. & You, L. Coronavirus 2019- nCoV: a brief perspective from the front line. J. Infect,2020; 80, 373–377.
21. Zhu, N. et al. A Novel Coronavirus from patients with pneumonia in China, 2019. N. Engl. J. Med, 2020; 382, 727–733.
22. Gralinski, L. E. & Menachery, V. D. Return of the coronavirus: 2019-nCoV. Viruses, 2020; 12, 135.
23. Jiang, S., Du, L. &Shi, Z. An emerging coronavirus causing pneumonia outbreak in Wuhan, China: calling for developing therapeutic and prophylactic strategies. Emerg. Microbes Infect., 2020; 9, 275–277.
24. Hughes J, Wilson M, Luby S, Gurley E, Hossain M. Transmission of human infec-tion with Nipah virus. Clin Infect Dis, 2009; 49(11):1743–8.
25. Li Q, Guan X, Wu P, Wang X, Zhou L, Tong Y, et al. Early transmission dynam-ics in Wuhan, China, of novel coronavirus-infected pneumonia. N Engl J Med, 2020; 382(13):1199–207.
26. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al. Clinical features ofpatients infected with 2019 novel coronavirus in Wuhan, China. Lancet, 2020; 395(10223):497–506.
27. Bauch C, Oraby T. Assessing the pandemic potential of MERS-CoV. Lance, t2013; 382(9893):662–4.
28. Riley S, Fraser C, Donnelly CA, Ghani AC, Abu-Raddad LJ, Hedley AJ, et al. Trans-mission dynamics of the etiological agent of SARS in Hong Kong: impact of public health interventions. Science, 2003; 300(5627):1961–6
29. Yang Y, Sugimoto JD, Halloran ME, Basta NE, Chao DL, Matrajt L, et al. The transmissibility and control of pandemic influenza A (H1N1) virus. Science, 2009; 326(5953):729–33.
30. Sookaromdee P, Wiwanitkit V. Imported cases of 2019-novel coronavirus (2019-nCoV) infections in Thailand: mathematical modelling of the outbreak.Asian Pac J Trop Med, 2020; 13(3):139–40.
31. Liu W, Zhang Q, Chen J, Xiang R, Song H, Shu S, et al. Detection of Covid-19 in children in early January 2020 in Wuhan, China. N Engl J Med, 2020; 382(14):1370–1.
32. Peiris JSM, Guan Y, Yuen KY. Severe acute respiratory syndrome. Nat Med, 2004; 10(12):S88–97.
33. Zaki AM, van Boheemen S, Bestebroer TM, Osterhaus AD, Fouchier RA. Isolation of a novel coronavirus from a man with pneumonia in Saudi Arabia. N Engl JMed, 2012; 367(19):1814–20.
34. Guan Y, Zheng BJ, He YQ, Liu XL, Zhuang ZX, Cheung CL, et al. Isolation and characterization of viruses related to the SARS coronavirus from animals insouthern China. Science, 2003; 302(5643):276–8.
35. Alagaili AN, Briese T, Mishra N, Kapoor V, Sameroff SC, Burbelo PD, et al. Middle East respiratory syndrome coronavirus infection in dromedary camels in Saudi Arabia. mBio, 2014;5(2), e00884-00814.