WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.084
Volume 9, Issue 5, 875-888. Review Article ISSN 2277– 7105

A REVIEW ON NOVEL CORONAVIRUS COVID-19

Hina D. Mehta*, Dr. N. R. Dighade and Dr. Ravi P. Kalsait

Nagpur College of Pharmacy, Wanadongri, Hingna Road, Nagpur 441110.

Article Received on
07 March 2020,

Revised on 28 March 2020,
Accepted on 17 April 2020,

DOI: 10.20959/wjpr20205-17408

***Corresponding Author**
Prof. Hina D. Mehta
Nagpur College of Pharmacy, Wanadongri, Hingna Road, Nagpur 441110.

ABSTRACT

The World Health Organization declared it as a Public Health Emergency of International Concern. The 2019-nCoV has been identified as the cause of an outbreak of respiratory illness in Wuhan, Hubei Province, China beginning in December 2019. As of 28 March 2020 (9:30 AM), according to the Ministry of Health & Family Welfare (MoHFW**),** a total of 873 COVID-19 cases (826 Indians and 47 foreign nationals) have been reported in 27 states/union territories. These include 78 who have been cured/discharged, 1 who has migrated and 19 reported deaths. As of 8 April 2020, the Ministry of Health and Family Welfare have confirmed a total of 5,274 cases, 411 recoveries (including 1 migration) and 149 deaths in the country. Experts suggest the number of infections could be much higher as India's testing rates are among the lowest in the world. Hospital isolation of all confirmed cases, tracing and home quarantine of the contacts is ongoing. The reported symptoms include fever, cough, fatigue, pneumonia, headache, diarrhea, hemoptysis, and dyspnea. Preventive measures such as masks, hand hygiene practices, avoidance of public contact, case detection, contact tracing, and quarantines are effective for reducing the transmission. The virus that causes COVID-19 is designated severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2); previously, it was referred to as 2019-nCoV. To date, no specific antiviral treatment is proven effective, hence, infected people primarily rely on symptomatic treatment and supportive care. This article discussed for a better understanding of the epidemiology, causes, clinical diagnosis, prevention and control of this virus. Therefore this review article aims to focus on more research work to be carried out to provide more reliable and valid effect to control and manage public emergency in both acute and chronic condition of covid-19.

KEYWORDS: covid-19, public health emergency, review.

INTRODUCTION[1],[2],[4],[5],[29],[23]

The name "coronavirus," coined in 1968, is derived from the "corona"-like or crown-like morphology Coronaviruses are from the family Coronaviridae and are single-stranded RNA viruses, the surface of which is covered by crownlike projections, giving the virus its name. This virus is spread via droplet and fomite exposure. Long known to cause upper respiratory infections, severe acute respiratory syndrome (SARS) pandemic in 2003 brought the ability of this virus to cause life-threatening pneumonia to worldwide attention, including fever, breathing difficulty, and lung infection. These viruses are common in animals worldwide, but very few cases of them are known to affect humans. Major gaps in our knowledge of the origin, epidemiology, duration of human transmission, and clinical spectrum of disease need fulfilment by future studies. The World Health Organization (WHO) used the term 2019 novel coronavirus (2019-nCoV) to refer to the coronavirus that was diagnosed from the lower respiratory tract of patients with pneumonia in Wuhan, China on 29 December, 2019. It is considered as zoonotic disease causes from civet cats, camels, bats. Pathogenesis: it causes both upper respiratory tract infection and lower respiratory tract infection. Virus attaches to specific cellular receptor via the spike protein, transformational changes occure that leads to fusion between the viral and cell membrane. That release nucleocapsid into the cell (transcription and translation). alteration of DNA and production of proteins and certain enzymes alter the normal function of cell and increase the release of cytokines and chemokines (IL-1B, IL-6,IL-7, IL8,IL,-9,IL-10, TNF **α,** also increase ESR,CRP, PROCALCITONIN causes hyperinflammation, severe acute respiratory distress syndrome (SARS), FLUMINANT MYOCARDITIS have been occure in immunocompromised and old age patient. The "Wuhan Virus" was first recognized in the beginning of December 2019 and identified as a new type of coronavirus 2019-nCoV. This coronavirus-induced pneumonia originated from Wuhan (China), and has spread across 27 countries, infected 17,488 people and caused 362 death. The transmission of 2019-nCoV to individuals of different countries is predominantly through close contact with an infected person. The experts around the global raise the concern on the rising number of infected cases and deaths, and increased the effort to produce an effective drug or vaccine for this virus. Several efforts have been done to aid the detection of the virus and treatment of patients: 2019-nCoV detection kits (BGI), and development of new hospital, and treating patients with combination of antiviral for flu and HIV. In the United States, doctors successfully treated a 2019-nCoV patient with Gilead Sciences drug – remdesivir, however further test need to be done to confirm the effectiveness of these antivirals. Hopefully, the pharmaceutical

companies with the team of researchers will be able to discover an effective vaccine to treat coronavirus 2019-nCoV.

EPIDEMIOLOGY[10],[11],[12],[13]

Since the first reports of cases from Wuhan, a city in the Hubei Province of China, at the end of 2019, more than 80,000 COVID-19 cases have been reported in China, with the majority of those from Hubei and surrounding provinces. A joint World Health Organization (WHO)-China fact-finding mission estimated that the epidemic in China peaked between late January and early February 2020 and the rate of new cases decreased substantially by early March. However, cases have been reported in all continents, except for Antarctica, and have been steadily rising in many countries. These include the United States, most countries in Western Europe (including the United Kingdom), and Iran. Understanding of the transmission risk is incomplete. Epidemiologic investigation in Wuhan at the beginning of the outbreak identified an initial association with a seafood market that sold live animals, where most patients had worked or visited and which was subsequently closed for disinfection. However, as the outbreak progressed, person-to-person spread became the main mode of transmission. On 22 March 2020, India observed a 14-hour voluntary public curfew at the instance of the prime minister Narendra Modi. The government followed it up with lockdowns in 75 districts where COVID cases had occurred as well as all major cities. Further, on 24 March, the prime minister ordered a nationwide lockdown for 21 days, affecting the entire 1.3 billion population of India.

CAUSES, CLINICAL MANIFESTATION[6],[7],[8],[9],[12],[13],[15],[16],[17]

Person-to-person spread of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is thought to occur mainly via respiratory droplets, resembling the spread of influenza. Droplets typically do not travel more than six feet (about two meters) and do not linger in the air. Although one letter to the editor described a study in which SARS-CoV-2 remained viable in experimentally generated aerosols for at least three hours, the relevance of this to the epidemiology of COVID-19 and its clinical implications are unclear. Given the current uncertainty regarding transmission mechanisms, airborne precautions are recommended in certain situations. SARS-CoV-2 RNA has been detected in blood and stool specimens. Live virus has been cultured from stool in some cases, but according to a joint WHO-China report, fecal-oral transmission did not appear to be a significant factor in the spread of infection. According to the Centers for Disease Control and Prevention (CDC), the average incubation

period for SARS-CoV-2 is 4 days. However, it can range anywhere from 2 to 14 days. Not everyone with a SARS-CoV-2 infection will feel unwell. It's possible to have the virus and not develop symptoms. When symptoms are present, they're typically mild and develop slowly. The most common symptoms are: fever, cough, fatigue, shortness of breath. Some people with COVID-19 may sometimes experience additional symptoms, such as: runny or stuffy nose, sore throat, headache, body aches and pains ,diarrhea, Some observations suggest that respiratory symptoms may worsen in the second week of illness. This appears to occur after 8 or 9 days. According to the World Health Organization (WHO), about 1 in 5 people with COVID-19 become seriously ill. These individuals can develop severe pneumonia or respiratory failure and may require oxygen or mechanical ventilation. In response to the outbreak, the Chinese Center for Disease Control and Prevention (China CDC) dispatched a rapid response team to accompany health authorities of Hubei province and Wuhan city to conduct epidemiological and etiological investigations. The WHO confirmed that the outbreak of the coronavirus epidemic was associated with the Huanan South China Seafood Marketplace, but no specific animal association was identified. Scientists immediately started to research the source of the new coronavirus, and the first genome of COVID-19 was published by the research team led by Prof. Yong-Zhen Zhang, on 10 January 2020. Within 1 month, this virus spread quickly throughout China during the Chinese New Year – a period when there is a high level of human mobility among Chinese people. Although it is still too early to predict susceptible populations, early patterns have shown a trend similar to Severe Acute Respiratory Syndrome (SARS) and Middle East respiratory syndrome (MERS) coronaviruses. Susceptibility seems to be associated with age, biological sex, and other health conditions. COVID-19 has now been declared as a Public Health Emergency of International Concern by the WHO. Given the spread of the new coronavirus and its impacts on human health, the research community has responded rapidly to the new virus and many preliminary research articles have already been published about this epidemic.

DIAGNOSIS[3],[8],[26],[21],[14],[28],[16],[23],[25]

The testing for COVID-19 is currently done on viral genetic material from nose and throat swabs, using a workhorse tool of molecular biology known as reverse transcription polymerase chain reaction (RT-PCR). The test works by amplifying a specific genetic sequence in the virus. Short complementary sequences known as primers help to get the copying started. But PCR can only detect virus while it is present in a person. It doesn't

reveal much about a resolved infection. It's also known to sometimes produce false positives if reagents in a lab become contaminated.

Labs worldwide have customized their PCR tests for SARS-CoV-2, using different primers targeting different sections of the virus's genetic sequence. Performance of the CDC 2019-nCoV Real-Time RT-PCR Diagnostic Panel is dependent upon the amount and quality of template RNA purified from human specimens. The some commercially available RNA extraction kits and procedures have been qualified and validated for recovery and purity of RNA for use with the panel.

Various types of vaccines have been evaluated for protection against TGEV. Immunization of pregnant swine with attenuated TGEV is not sufficient to protect suckling pigs from infection. Inoculation of young pigs directly with attenuated virus is also unable to stimulate enough immunoglobulin A (IgA)-secreting cells in the intestines to protect against TGEV. It should also be considered in patients with severe lower respiratory tract illness without any clear cause. Although these syndromes can occur with other viral respiratory illnesses, the likelihood of COVID-19 is increased if the patient: Resides in or has traveled within the prior 14 days to a location where there is community transmission of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2; ie, large numbers of cases that cannot be linked to specific transmission chains) or Patients with suspected COVID-19 who do not need emergency care should be encouraged to call prior to presenting to a health care facility for evaluation. The diagnosis cannot be definitively made without microbiologic testing, but limited capacity may preclude testing all patients with suspected COVID-19. Local health departments may have specific criteria for testing. In the United States, the Centers for Disease Control and Prevention (CDC) and the Infectious Diseases Society of America have suggested priorities for testing; high-priority individuals include hospitalized patients (especially critically ill patients with unexplained respiratory illness), symptomatic health care workers, and symptomatic individuals who have risk factors for severe disease. Testing criteria suggested by the World Health Organization (WHO) can be found in its technical guidance online. These are the same criteria used by the European Centre for Disease Prevention and Control. An approach to suspected cases when testing is not available is discussed elsewhere. Patients who meet the testing criteria discussed above should undergo testing for SARS-CoV-2 (the virus that causes COVID-19) in addition to testing for other respiratory pathogens (eg, influenza, respiratory syncytial virus). In the United States, the

CDC recommends collection of a nasopharyngeal swab specimen to test for SARS-CoV-2 . An oropharyngeal swab can be collected but is not essential; if collected, it should be placed in the same container as the nasopharyngeal specimen. Oropharyngeal, nasal mid-turbinate, or nasal swabs are acceptable alternatives if nasopharyngeal swabs are unavailable. Expectorated sputum should be collected from patients with productive cough; induction of sputum is not recommended. A lower respiratory tract aspirate or bronchoalveolar lavage should be collected from patients who are intubated. In a study of 205 patients with COVID-19 who were sampled at various sites, the highest rates of positive viral RNA tests were reported from bronchoalveolar lavage (95 percent, 14 of 15 specimens) and sputum (72 percent, 72 of 104 specimens), compared with oropharyngeal swab (32 percent, 126 of 398 specimens). Data from this study suggested that viral RNA levels are higher and more frequently detected in nasal compared with oral specimens, although only eight nasal swabs were tested. SARS-CoV-2 RNA is detected by reverse-transcription polymerase chain reaction (RT-PCR). In the United States, testing is performed by the CDC, by local public health departments, by hospitals that have developed and validated their own tests, and by certain commercial reference laboratories. If initial testing is negative but the suspicion for COVID-19 remains, the WHO recommends resampling and testing from multiple respiratory tract sites. Infection control precautions for COVID-19 should continue while repeat evaluation is being performed. The accuracy and predictive values of SARS-CoV-2 testing have not been systematically evaluated, and the sensitivity of testing likely depends on the precise test as well as the type of specimen obtained. Negative RT-PCR tests on oropharyngeal swabs despite CT findings suggestive of viral pneumonia have been reported in some patients who ultimately tested positive for SARS-CoV-2. Serologic tests, once generally available, should be able to identify patients who have either current or previous infection but a negative PCR test. In one study that included 58 patients with clinical, radiographic, and epidemiologic features suspicious for COVID-19 but with negative SARS-CoV-2 PCR testing, an immunoglobulin (Ig)M ELISA was positive in 93 percent (and was negative when tested on plasma specimens that predated the COVID-19 outbreak). For safety reasons, specimens from a patient with suspected or documented COVID-19 should not be submitted for viral culture. The importance of testing for other pathogens was highlighted in a report of 210 symptomatic patients with suspected COVID-19; 30 tested positive for another respiratory viral pathogen, and 11 tested positive for SARS-CoV-2. In addition, coinfection with SARS-CoV-2 and other respiratory viruses, including influenza, has been reported and this may impact management decisions.

MANAGEMENT[7],[8],[12][13],[18],[24],[25],[,27],[29]

Patients with suspected or documented COVID-19 have severe disease that warrants hospital care. Management of such patients consists of ensuring appropriate infection control, and supportive care. Investigational approaches are also being evaluated. Patients with severe disease often need oxygenation support. High-flow oxygen and noninvasive positive pressure ventilation have been used, but the safety of these measures is uncertain, and they should be considered aerosol-generating procedures that warrant specific isolation precautions. The WHO and CDC recommend glucocorticoids not be used in patients with COVID-19 pneumonia unless there are other indications (eg, exacerbation of chronic obstructive pulmonary disease). Glucocorticoids have been associated with an increased risk for mortality in patients with influenza and delayed viral clearance in patients with Middle East respiratory syndrome coronavirus (MERS-CoV) infection. Although they were widely used in management of severe acute respiratory syndrome (SARS), there was no good evidence for benefit, and there was persuasive evidence of adverse short- and long-term harm. The European Medicines Agency (EMA) and the WHO do not recommend that NSAIDs be avoided when clinically indicated. acetaminophen as the preferred antipyretic agent, if possible, and if NSAIDs are needed, the lowest effective dose should be used. A number of investigational approaches are being explored for antiviral treatment of COVID-19, and enrollment in clinical trials should be discussed with patients or their proxies. It is important to acknowledge that there are no controlled data supporting the use of any of these agents, and their efficacy for COVID-19 is unknown. Several randomized trials are underway to evaluate the efficacy of remdesivir for moderate or severe COVID-19. Remdesivir is a novel nucleotide analogue that has activity against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in vitro and related coronaviruses (including SARS and MERS-CoV) both in vitro and in animal studies. Remdesivir is an intravenous agent; reported side effects include nausea, vomiting, and transaminase elevations. It is also prepared in a cyclodextrin vehicle, so there is concern for potentially toxic accumulation of the vehicle in renal impairment. Exclusion criteria vary by trials but include alanine aminotransferase level >5 times the upper limit of normal and chronic kidney disease (creatinine clearance <30 or <50 mL/min, depending on the trial); some trials also exclude use of a different COVID-19-targeted therapy within 24 hours prior to remdesivir initiation. The compassionate use of remdesivir through an investigational new drug application was described in a case report of one of the first patients with COVID-19 in the United States. Any clinical impact of remdesivir on COVID-19 remains unknown. chloroquine and hydroxychloroquine have been reported to

inhibit SARS-CoV-2 in vitro, although hydroxychloroquine appears to have more potent antiviral activity . Clinical data evaluating hydroxychloroquine or chloroquine are limited, and their efficacy against SARS-CoV-2 is unknown. Nevertheless, given the lack of clearly effective interventions and the in vitro antiviral activity, some clinicians think it is reasonable to use hydroxychloroquine in hospitalized patients with severe disease or risk for severe disease who are not eligible for clinical trials. In the United States, the FDA issued an emergency use authorization to allow the use of these agents in adolescents or adults hospitalized for COVID-19 when participation in clinical trials is not feasible. However, if these agents are used outside of a clinical trial, the possibility of drug toxicity (including QTc prolongation, in particular, as well as cardiomyopathy and retinal toxicity) and drug interactions should be considered prior to use, especially in individuals who may be more susceptible to these effects, and the patients should be monitored closely for adverse effects during use. The American College of Cardiology has suggested QTc monitoring parameters in this setting . Optimal dosing is uncertain; the FDA suggests hydroxychloroquine 800 mg on day 1 then 400 mg daily and chloroquine 1 g on day 1 then 500 mg daily, each for four to seven days total depending on clinical response. Other hydroxychloroquine regimens used include 400 mg twice daily on day 1 then daily for five days, 400 mg twice daily on day 1 then 200 mg twice daily for four days, and 600 mg twice daily on day 1 then 400 mg daily for four days. Use of chloroquine is included in treatment guidelines from China's National Health Commission and was reportedly associated with reduced progression of disease and decreased duration of symptoms. However, primary data supporting these claims have not been published. Other published clinical data on either of these agents are limited. In an open-label study of 36 patients with COVID-19, use of hydroxychloroquine (200 mg three times per day for 10 days) was associated with a higher rate of undetectable SARS-CoV-2 RNA on nasopharyngeal specimens at day 6 compared with no specific treatment. In this study, the use of azithromycin in combination with hydroxychloroquine appeared to have additional benefit, but there are methodologic concerns about the control groups for the study, and the biologic basis for using azithromycin in this setting is unclear. In a randomized trial of 30 adults with COVID-19 in Shanghai, the proportion of patients with nasopharyngeal viral clearance at day 7 was not different with hydroxychloroquine (400 mg daily for five days) compared with standard of care, and one patient in the hydroxychloroquine group progressed to severe disease; interferon and other antiviral agents were used in both arms, which could be confounding factors. Furthermore, chloroquine through the inhibition of MAP-kinase interferes with SARS-CoV-2molecularcros stalk, besides altering the virionas-

sembly, budding and interfering with the proteolytic processing of the Mprotein. Previous experimental studies have also demonstrated that chloroquine has potent anti-SARS-CoV-1effects invitro, primarily attributable to a deficitin the glycosylation receptors at the virus cell surface, so that it can not bind to the angiotensin-converting enzyme2 (ACE2) expressed in lung, heart, kidney and intestine. Since SARS-CoV-2utilizes the similar surface receptorACE2, it is believed that chloroquine can also interfere with ACE2 receptor glycosylation thus prevents SARS-CoV-2 attachment to the target cells. Treatment guidelines from China's National Health Commission include the interleukin (IL)-6 receptor inhibitor tocilizumab for patients with severe COVID-19 and elevated IL-6 levels. This agent, as well as sarilumab and siltuximab, which also target the IL-6 pathway, are being evaluated in clinical trials. A case series described administration of plasma from donors who had completely recovered from COVID-19 to five patients with severe COVID-19 on mechanical ventilation and persistently high viral titers despite investigational antiviral treatment. The patients had decreased nasopharyngeal viral load, decreased disease severity score, and improved oxygenation by 12 days after transfusion, but these findings do not establish a causal effect. Finding appropriate donors and establishing testing to confirm neutralizing activity of plasma may be logistical challenges. Favipiravir is an RNA polymerase inhibitor that is available in some Asian countries for treatment of influenza and is being evaluated in clinical trials for treatment of COVID-19. In a study of patients with non-severe disease (including oxygen saturation >93 percent), use of favipiravir was associated with faster rates of viral clearance (median time to clearance 4 versus 11 days) and more frequent radiographic improvement (in 91 versus 62 percent by day 14) compared with lopinavir-ritonavir. However, other therapies were administered in this non-randomized, open-label study, so the results should be interpreted with caution given potential confounders. Lopinavir-ritonavir appears to have little to no role in the treatment of SARS-CoV-2 infection. This combined protease inhibitor, which has primarily been used for HIV infection, has in vitro activity against the SARS-CoV and appears to have some activity against MERS-CoV in animal studies. However, there was no difference in time to clinical improvement or mortality at 28 days in a randomized trial of 199 patients with severe COVID-19 given lopinavir-ritonavir (400/100 mg) twice daily for 14 days in addition to standard care versus those who received standard of care alone.

PREVENTION AND CONTROL[6],[7],[8],[9],[19],[20],[23],[25]

Screening patients for clinical manifestations consistent with COVID-19 (eg, fever, cough, dyspnea) prior to entry into a health care facility can help identify those who may warrant additional infection control precautions. This can be done over the phone before the patient actually presents to a facility. Routine visits should be postponed for patients with these manifestations; if they need to present for medical care, they should be advised to wear a facemask. Separate waiting areas for patients with respiratory symptoms should be designated, if possible, at least six feet away from the regular waiting areas. In locations where community transmission is ongoing, postponing all elective procedures or non-urgent visits and using virtual (eg, through video communication) visits may be useful strategies to reduce the risk of exposure in the health care setting. In some settings, such as long-term care facilities, the United States Centers for Disease Control and Prevention (CDC) recommends that standard, contact, and droplet precautions in addition to eye protection be used for any patient with an undiagnosed respiratory infection who is not under consideration for COVID-19. Some institutions have instituted policies requiring health care workers to wear masks in all clinical settings. These strategies may help reduce the risk of spread from unsuspected virus carriers. The WHO recommends standard, contact, and droplet precautions (ie, gown, gloves, and mask), with eye or face protection. The addition of airborne precautions (ie, respirator) is warranted during aerosol-generating procedures Aerosol-generating procedures include tracheal intubation, noninvasive ventilation, tracheotomy, cardio pulmonary resuscitation, manual ventilation before intubation, upper endoscopy, and bronchoscopy. The CDC does not consider nasopharyngeal or oropharyngeal specimen collection an aerosol-generating procedure that warrants an airborne isolation room, but it should be performed in a single-occupancy room with the door closed, and any personnel in the room should wear a respirator The CDC recommends that patients with suspected or confirmed COVID-19 be placed in a single-occupancy room with a closed door and dedicated bathroom. The patient should wear a facemask if being transported out of the room. Individuals with suspected infection in the community should be advised to wear a medical mask to contain their respiratory secretions prior to seeking medical attention. The CDC recommends that patients with suspected or confirmed COVID-19 be placed in a single-occupancy room with a closed door and dedicated bathroom. The patient should wear a facemask if being transported out of the room (eg, for studies that cannot be performed in the room). An airborne infection isolation room (ie, a single-patient negative pressure room) should be reserved for patients undergoing aerosol-generating procedures. Any personnel entering the room of a patient with

suspected or confirmed COVID-19 should wear the appropriate personal protective equipment (PPE): gown, gloves, eye protection, and a respirator (eg, an N95 respirator). If supply of respirators is limited, the CDC acknowledges that facemasks are an acceptable alternative (in addition to contact precautions and eye protection), but respirators should be worn during aerosol-generating procedures. For health care workers who have had a potential exposure to COVID-19, the CDC has provided guidelines for work restriction and monitoring. The approach depends upon the duration of exposure, the patient's symptoms, whether the patient was wearing a facemask, the type of PPE used by the provider, and whether an aerosol-generating procedure was performed. Some local health departments allow health care workers to return to work following an exposure if they adhere to cough and hand hygiene, wear a facemask while at the health care facility until 14 days after the exposure, and monitor daily for fever or respiratory symptoms, the presence of which would prompt immediate self-isolation. The importance of infection control in preventing the spread of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in health care settings has been demonstrated in several studies. In one report of 138 patients with COVID-19 in China, it was estimated that 43 percent acquired infection in the hospital setting. In Washington State, suboptimal use of infection control procedures contributed to the spread of infection to 81 residents, 34 staff members, and 14 visitors .The importance of environmental disinfection was illustrated in a study from Singapore, in which viral RNA was detected on nearly all surfaces tested (handles, light switches, bed and handrails, interior doors and windows, toilet bowl, sink basin) in the airborne infection isolation room of a patient with symptomatic mild COVID-19 prior to routine cleaning. Viral RNA was not detected on similar surfaces in the rooms of two other symptomatic patients following routine cleaning (with sodium dichloro isocyanurate). Other coronaviruses have been tested and may survive on inanimate surfaces for up to six to nine days without disinfection. In a study evaluating the survival of viruses dried on a plastic surface at room temperature, a specimen containing SARS-CoV (a virus closely related to SARS-CoV-2) had detectable infectivity at six but not nine days. However, in a systematic review of similar studies, various disinfectants (including ethanol at concentrations between 62 and 71 percent) inactivated a number of coronaviruses related to SARS-CoV-2 within one minute.

CONCLUSION

We summarize and critically analyze all the published scientific articles regarding the new corona virus. This review aims to provide the better understanding about the evidence of

early findings on the epidemiology, causes, clinical diagnosis, as well as prevention and control of COVID-19 in relation to time, location, and source of publication. This review can provide meaningful information for future research related to this topic and may support pharmaceutical health care sectors and government for decision-making on strategies to handle this public health emergency at the community, national, and international levels.

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