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A Review on Evolution of Medicine After and During Corona

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Abstract

As of the beginning of 2023, 6.7 million people had perished from COVID-19, according to the World Health Organization. However, there have also been some positive developments, such as the notable decline in influenza-related deaths in the first year of the pandemic as a result of masking and social isolation, as well as the quick adoption of vaccines utilizing cutting-edge technologies like mRNA vaccines, which hold out great promise for combating other infectious diseases. The necessity of interdisciplinary approaches for tackling complicated problems is one lesson to be learned from the pandemic. With only virology, we are unable to contain a viral epidemic. To understand the relationships between human behavior, disease transmission, government interventions, global transport and trade, and the production and distribution of vaccines and treatments, among others, we need epidemiologists, engineers, sociologists, political scientists, historians, medical doctors, economists, statisticians, anthropologists, mathematicians, and geographers. The global COVID-19 pandemic has caused a shift in the priority of medical and surgical operations. Numerous healthcare systems have ceased doing their regular screenings as a result of it. The reference rate was significantly lower, especially among the elderly, after medical clinics were converted to COVID-19 referral facilities, lockdowns were implemented, and the public was afraid to refer patients to medical centers. The development of medicine both during and after the Corona is highlighted in this review work.

Keywords: COVID-19, pandemic, SARS-CoV-2, coronavirus, treatment, therapy

INDRODUCTION

The emergence of the COVID-19 pandemic has drastically impacted the field of medicine, leading to remarkable advancements and sparking new trends in healthcare. This study aims to critically review the evolution of medicine following the COVID-19 outbreak. Analyzing its impact on various aspects of healthcare, including diagnostics, treatment, Telehealth, and research, the study highlights the ongoing formal transformations in the field. Nearly overnight, the pandemic changed the desires of society and the position of medical care in day by day life. While throughout the pandemic, reactive efforts, such as modifications to long-standing policies, were made, there is currently an opportunity to assist healthcare systems worldwide in meeting the spikes in demand for services, to drastically and permanently alter healthcare coverage for the better, via proactive efforts. Various coverage efforts taken at some point of the pandemic centered the "sludge" inside current healthcare systems, or insurance policies and protocols that obstruct well timed delivery of genuine bodily care [1], such as these specifically carried out with the aid of Centers for Medicare and Medicaid Services that expedited the care. Transportation method through the increased insurance coverage of telemedicine visits throughout the pandemic, or so they essentially thought [2]. Since the emergence of particularly

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human race, plant life definitely have been the supply of countless compounds, having very medicinal residences and lead to drug discovery in a subtle way. Since the historical times, Indian Ayurveda, Traditional Chinese Medicine Literature, historic Egyptian Ebbers Papyrus, all definitely offer description of quite a number flora and herbs having medicinal properties which specifically are even these days used all over the world [3, 4].

All over, medicine aspects are changed or evaluated after the COVID-19 period, such as diagnostic method and treatment method etc.; and new innovations have also occurred during the period of COVID-19. So, firstly we know about the COVID-19, COVID pandemic, and many more things about COVID-19.

Diagnostic Technique

1. Telehealth,
2. Rapid antigen tests,
3. Genetic sequencing technique, and
4. Testing kits.

Treatment Technique

1. Antiviral therapy,
2. Monoclonal antibody,
3. Advanced ventilation techniques, and
4. Ayurveda.

TELEHEALTH

The world's experience with the COVID-19 pandemic has shown the benefits of telemedicine in limiting the disease spread while still providing access to medical expertise. Telehealth will not replace virus testing to determine the presence of coronavirus in patients who have symptoms of a potential infection. Private telehealth insurance coverage in the United States was different under different circumstances and was different from payer to payer before the COVID-19 crisis. According to a poll, 75% of people with behavioral health problems in the United States continued to seek treatment because of the accessibility of telehealth services. However, 42% of people reported a deficiency in regular healthcare [5]. Females used telemedicine services two times more often than males during the COVID-19 epidemic, according to studies, and young adult patients were the most frequent telecare service users, aged 20 to 44 years [6–10]. Telemedicine has been extended by exploiting the recent increase in access to digital technologies by all segments of the population in recent years, with the availability of virtual visits by video mobile health applications (Figure 1) [11]. The exponential rise in the use of

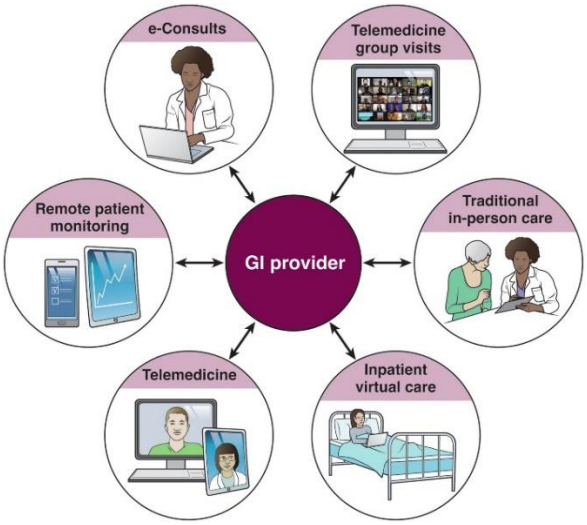

Figure 1. Update on telemedicine in gastroenterology.

telemedicine during the epidemic is not only here to stay, but has extended its use beyond its original purpose of providing remote patient care. Remote diagnostic services are also expected to increase in popularity, particularly in remote and underserved areas [12]. Emerging technologies, such as portable cardiac and lung monitors, will be able to record patient data in real time, enabling physicians to assess and treat more patients in particular geographic areas [13, 11]. The current pandemic has prompted a need for remote learning, study, and meetings, and has resulted in widespread use of videoconferencing technologies on commercial and social digital platforms. In the United States, smart phones, tablets, and computers are already common, with 90% of adults using the internet regularly [14].

RAPID ANTIGEN TEST

Antigen-detection devices have a long and successful history as a laboratory diagnostic tool for a small crew of infectious diseases [15]. Immunoassays developed for antigen detection are superior in terms of a wide variety of diagnostic properties that can be traced back to Yalow and Berson's pioneering work 60 years ago [16, 17]. As the COVID-19 epidemic began to develop, the most common "golden standard" test, which diagnostic laboratories have relied on, was a nucleic acid amplification test, such as PCR, to identify people who have been infected with Sars-Cov-2 [18, 19]. PCR has taken the place of the laborious and time-consuming *in vitro* viral culture from patient samples for diagnostic purposes, albeit depending on the volume of work at the testing facility, some versions may take several hours to produce results. Furthermore, it may be difficult or impossible to receive timely findings for this type of testing in many nations with inadequate laboratory capabilities, poor health care infrastructure, and/or facilities. This problem could be solved as an alternative by using antigen-detection technologies. These devices are both relatively inexpensive and lightweight, making them ideal for traveling and can yield outcomes in roughly 15 min. They employ tried-and-true lateral flow methods [20]. The first emergency use authorization (EUA) for a COVID-19 antigen test, a novel class of tests intended for use in the impending pandemic, has been issued by the US Food and Drug Administration. Through the use of swabs to gather samples from the nasal canal, these diagnostic procedures are able to immediately identify proteins on or within the virus [21].

GENETIC SEQUENCING

The pandemic has opened a new era of genomic surveillance, wherein scientists are monitoring changes of the viral genome in real-time to understand the evolution of SARS-CoV-2 and to predict the emergence of new variants at the global and national levels [22]. Advancements in genomics have improved scientific knowledge and public health response to the COVID-19 epidemic, which was not feasible during previous outbreaks like the 2002–2003 severe acute respiratory syndrome (SARS) epidemic [23]. CSIR, ICMR, and the Department of Biotechnology, Ministry of Science & Technology, Government of India, comprising 28 national laboratories to sequence and track the SARS-CoV-2 Genomic Variations is an advanced discipline that focuses on how genomic information is used in clinical diagnosis, therapy, and predicting outcomes [24, 25]. For early detection, tracking, tracing, sequencing, and the introduction of therapeutic methods, a range of bioinformatics workflows and tools have been developed. Interestingly, we have considered a more than four-fold extend in drug designing tools and software in the ultimate few years, whilst ML tools have increased by two-fold. To avoid the false-positive and false-negative detection of qRT-PCR, a computation-based primer PriSeT has been developed for detecting the specificity and sensitivity of the qRT-PCR test [26].

Figure 2. Mylab Coviself COVID-19 rapid antigen self-test kit.

TEST KIT

We have developed a speedy check kit for detecting SARS-CoV-2 that can be performed on area without the want for a laboratory or professional equipment (Figure 2). The technical important points have been mentioned: The containment of the COVID-19 pandemic requires dependable detection of COVID-19 cases, through sensible choice of the excellent test, taking into consideration, the relative distinction in sensitivity and specificity, as well as the scientific status [27]. As a result, there is an essential need for choice detection techniques, particularly quick diagnostic tests, which, because of their simplicity of use, may be used as point-of-care evaluations in community-based settings [28]. In order to meet the overwhelming demand for COVID-19 diagnosis and quick COVID testing, our study evaluated the overall diagnostic performance of several real-time polymerase chain reactions (RT-PCR) and Rapid Antigen Detection (RAD) kits for detecting Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). As the name suggests, it offers a rapid diagnostic technique to determine if any individual is infected with SARS-CoV-2; as rapidly as 15 min [29].

ANTIVIRAL THERAPY

Despite common perception, the translational science field has successfully completed quick drug discovery campaigns and created innovative antivirals in the midst of a rapidly spreading pandemic for the first time. Contrary to popular opinion, there were two oral medications with emergency use authorizations (EUA) during a two-year period: molnupiravir (Merck) and nirmatrelvir (Pfizer), which were initially developed for the Venezuelan Equine Encephalitis Virus (VEEV). Additionally, there have been innumerable scientific studies involving investigational oral medicines, including ensitrelvir (S-217622; Shionogi), pomotrelvir (PBI-0451; Pardes Biosciences), bemnifosbuvir (AT-527; ATEA), and EDP-235 (Enanta). Furthermore, remdesivir (Gilead Sciences; developed early for Ebola), a small-molecule antiviral therapeutic administered intravenously, was previously approved quite early during the pandemic [30].

For much of the COVID-19 pandemic, there were few effective treatments, and no easily-treatable Coronavirus that causes COVID-19. That changed when the Food and Drug Administration Authorized Paxlovid, an antiviral pill made by Pfizer, at the end of 2021 (Figure 3) [31].

MONOCLONAL ANTIBODIES TREATMENT

Monoclonal antibodies have essentially been identified as a viable therapy to effectively halt the progression of COVID-19 illness, particularly in individuals at risk for severe disease. Most antibodies produced by the human body are typically polyclonal, meaning they are derived from multiple B lymphocyte lineages and have different specificities for target antigens, which is significant [32, 33].

The competition to lessen COVID-19 global burden: Numerous monoclonal antibodies have been created and authorized for use in emergencies (EUAs). However, the majority of monoclonal antibodies had their Emergency Use Authorizations (EUAs) revoked when new COVID-19 variants emerged, due to limited efficacy against dominant circulating strains and subvariants [34, 35] (Figure 4). This

Figure 3. Q&A on Paxlovid, Pfizer's COVID-19 oral antiviral.

Figure 4. Bamlanivimab is a monoclonal antibody developed by AbCellera Biologics and Eli Lilly as a Treatment for COVID-19. The medication was granted an emergency use authorization by The US Food and Drug Administration in November 2020, and the EUA was revoked in April 2021.

activity critiques the pathophysiology and function of these monoclonal antibodies and the risks and advantages of these agents. It should be noted that none of these monoclonal antibodies are recommended for use in the treatment of COVID-19 in 2023, according to the National Institutes of Health (NIH). The sole antibody monoclonal with a vibrant Tixagevimab is co-packaged with Claimable in EUA.

ADVANCED VENTILATION TECHNIQUES

The high contagiousness of the virus that causes COVID-19, specifically severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Even while only a tiny percentage of people experience severe forms of the disease, the total number of these patients is large and has the potential to cause the collapse of health care systems. The lack of ICU beds and mechanical ventilators is the primary structural barrier, with ventilatory guides at the core of the issue. Furthermore, because of the risk of viral aerosolization into the surrounding air and infection of other patients or members of the multidisciplinary crew, there are limitations on the use of high-flow nasal cannulas and noninvasive ventilation. Patients with COVID-19 can require MV for 2–4 weeks. Furthermore, difficult-to-resolve complications such pneumonia linked to the ventilator, pulmonary thromboembolism, confusion, and patient-ventilator asynchrony can increase morbidity and mortality. The challenges for offering MV safely consist of keeping the furnish of materials, such as private shielding equipment, MV add-ons (such as filters and circuits), and medicinal drugs (for sedation, analgesia, and neuromuscular blocks), as nicely as the want for guide from medical engineering services (Figure 5) [36]. In contrast, using a mechanical ventilator (MV) with the appropriate settings lowers mortality, the frequency of complications, the length of time spent in the intensive care unit (ICU), and the expense of the hospital stay. Mistakes made when adjusting the MV can result in major iatrogenic problems and increase the risk of death [37].

AYURVEDA

A key objective in long-term COVID administration is to pick out and proactively control issues and guide sufferers through the restoration segment with the purpose of preserving their health status. It is necessary to formulate proper treatment protocol for these patients, to assist them repair bodily and respiratory characteristic and to minimize anxiousness and depression, mainly sufferers with co-morbidities to repair a exact first-rate of life. Ayurveda has enough workable possibilities each for the prevention and treatment of long-term COVID. This is the motive why, after recuperation from the acute phase of the disease, many sufferers are seeking for Ayurveda cure for long-term lingering aspect effect. Recent clinical trials on the management of COVID-19 have indicated that, unless there are persistent long-term symptoms, Ayurvedic treatment is recommended in moderate to average cases of COVID-19, particularly as an adjunctive measure. This suggests that side effects may also be reduced

Figure 5. A physiotherapist wearing a prototype of a helmet-type system developed specifically for coping with COVID-19 The helmet reduces the risk of air pollution by enabling the application of positive pressure around the head using a combination of high flows of compressed air and oxygen, allowing a FiO_2 of up to 100% and continuous positive airway pressure of up to 18–20 cmH_2O. leakage into the environment. Source: Personal Archive of Holanda MA.

Figure 6. Tel. Coronavirus medicine kit launched by ayurvedic product giant Patanjali. The kit will include Coronil, Shwasari and Anu.

and long-term residual problems may disappear even if an Ayurvedic remedy is administered in conjunction with a contemporary medication during the acute period. According to one study's findings, an integrative approach for hospitalized patients that uses Ayurvedic administration practices is expected to improve treatment outcomes and lower risk. This document demonstrates that Ayurvedic intervention can prevent long-term ICU hospitalization, decline resulting in complications, and facilitate full recovery [38]. If the fundamentals of Ayurveda are used according to the condition of the illness, they can certainly stop the sickness in its tracks (Figure 6). The therapy plans as counseled through AYUSH having an immune-modulatory effect can virtually fight the disease. The Rasayana remedy and the common Yoga protocol stated with the aid of the AYUSH is an essential device in dealing with the administration of post-COVID syndrome. To determine the true mechanism and recommendation of any certain medication or treatment, more research on the topic of AYUSH is essential [39].

CONCLUSION

The COVID-19 pandemic has served as a catalyst for remarkable advancements in medicine and healthcare. The evolution of diagnostics, treatment strategies, telehealth, and research serves as testament to the resilience and adaptability of the medical community. And make our health care strong during this pandemic period and future prepare for COVID-19 like disaster by above evolution in medicine field.

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