

Importance of Tele-Medicine during Covid-19 Outbreak

Najlaa Mohammad Alsudairy^{1*}, Turki Fahad Alotaibi², Al Dosari, Bandar Abdullah³, Fadilah Ali Kheyami⁴, Norah Dakhilallah Aljohani⁴, Alshehri, Waleed Mohammed G⁵, Mohammed Khalid Jerayed Aljerayed⁶, Aljerayed Anas Khalid J⁷, Ghufran Abdullah Albakri⁸, Maan Abdullah Samkari⁹ and Afnan Ateeg Batwie⁹

¹Assistant Consultant FM, National Guard Hospital, King Abdulaziz Medical City, SCOHS, Saudi Arabia

²Huraymila Hospital, Saudi Arabia

³Presidency of State Security, Special Emergency Forces, Saudi Arabia

⁴Taibah University, Saudi Arabia

⁵Najran University, Saudi Arabia

⁶Prince Sultan Military Medical City, Saudi Arabia

⁷Imam Mohammed ibn Saud University, Saudi Arabia

⁸Ibn Sina National College, Saudi Arabia

⁹King Abdulaziz University, Saudi Arabia

***Corresponding Author:** Najlaa Mohammad Alsudairy, Assistant Consultant FM, National Guard Hospital, King Abdulaziz Medical City, SCOHS, Saudi Arabia.

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Abstract

Prevention and quarantine are seen as a most efficient means of preventing the rapid dissemination of the virus after diagnosing SARS-Cov2 infection since, considering the attempts made by scientists and researchers around the world, no effective vaccinations, medicines or antivirals have been developed to prevent and cure this disease. Telemedicine provides clinical resources through the exchanging of knowledge for diagnosis, study, assessment and ongoing education of medical service providers, by all the health practitioners who are using the ICTs. Tele-health means care providers and programs delivered by medical practitioners. Further research should evaluate the safety and effectiveness, in the current quality, of current effects and long-term results of universal use of remote healthcare systems, of continuous experience of telemedicine in the COVID-19 pandemic.

Keywords: COVID-19; Coronavirus; Telemedicine; Tele-Health; Pandemic

Introduction

A group of patients with a first diagnosis of a pneumonia of undisclosed etiology was admitted to hospitals by late December 2019. Patients in Wuhan, Hubei Province in China have been related epidemiologically to the marketplace of seafood [1,2]. The epidemic came from Wuhan in China and continued to spread to the rest of the world [3].

The virus was found to be a new coronavirus. This virus, originally tentatively known as a novel coronavirus in 2019 (2019-nCoV), has been renamed SARS-CoV-2 from the International Committee for the Taxonomy of the Viruses (ICTV). The new SARS-CoV-2 coronavirus

is a positive RNA virus which can be encoded and integrated with its own RNA messenger to the host cell promptly, thus promoting cell reproduction and infectiousness [5].

In early January 2020, WHO was alerted that the outbreak of fever, dyspnea and cough caused a serious pneumonia with bilateral invasive pulmonary infiltration [6]. The WHO announced a pandemic on 31 January 2020 as a world health emergency and on 11 March 2020 that it has the ability to extend to a global dimension [7]. The WHO declared this emergency global health emergency. On 11 March 2020. Around 3 million patients in 187 countries, regions or nations with a death risk of 4.2 per cent have experienced COVID-19 epidemic and are a significant public health issue [8].

The 2019-nCoV origins remains undisclosed. However, the growing outbreak was related to the Market for Seafood in Huanan South China [9]. In order to aid in the discovery of the zoonotic propagation pattern [10], it is necessary to identify the virus source. Most of the reports conclude that the 2019-nCoV host could be bats, pangolins or seafood and the challenge is to identify the intermediate host for human transmission of the coronavirus [11]. It seems that the virus may have first been transferred to people by a contaminated animal on the seafood market [12]. The COVID-19 virus was soon detected as a secondary vector of infection by droplets and contact human-to-human [13]. Several studies indicate that the most common source for COVID-19 distribution was symptomatic individuals. It spreads mainly to persons by coughing or sneezing an affected person by means of respiratory droplets [14]. In addition, there are suggestions that asymptomatic individuals could transmit the virus that increases the difficulty of COVID 19-infection dynamics of disease transmission [15]. Furthermore, the possibility of SARS-CoV-2 transmission should be determined on other potential and expected routes as well as in other respiratory viruses by direct contact including shaking of contaminated hands or direct contact with contaminated surfs, if blood transfusion, organ transplantation or transplant and perinatal routes are still possible, SARS-CoV-2 transmission routes Recent studies have shown that aerosol and fomite exposure will continue to work for hours in aerosols and up to days on surfaces, and thus could play a strong role in SARS-CoV-2 transmission [16,17].

Recent findings have shown that the population aged 60 or more and low in immune function, with chronic diseases such as diabetes, coronary diseases, chronic respiratory conditions, cancer, renal dysfunction and hepatic disorder, are at greater risk for extreme COVID-19 than infected children or who may have milder signs or also asymptomatic infection [18].

For patients with COVID-19, fever and inflammation, shortness of breath, and other non-specific signs, such as headache, dyspnea, nausea and muscle suffering, are the most frequent clinical symptoms. In addition, certain patients experience bowel problems including diarrhoea and vomiting [19]. SARS-CoV-2 infuses the pulmonary parenchyma and causes extreme lung inflammation. This can be seen in CT pictures like ground glass opacity in the lungs. This lesion affects one lobe at first and then spreads over other lung lobes [20]. In addition to pneumonia, COVID-19 infection and some acute respiratory distress syndromes established (ARDS). Indications of the seriousness of the infection by the COVID-19 disease are given by blood biochemistry indexes (such as albumin, lactate dehydrogenase, C-reactant proteins, lymphocytes (percent) and neutrophils (percent)). In the majority of patients, aspartate aminotransferase (AST), aspartate aminotransferase (AST), lactate dehydrogenase (LDH) and inflammatory biomarkers were present with lymphopenia and platelet abnormality [22].

Prevention and quarantine are seen as a most efficient means of preventing the rapid dissemination of the virus after diagnosing SARS-Cov2 infection since, considering the attempts made by scientists and researchers around the world, no effective vaccinations, medicines or antivirals have been developed to prevent and cure this disease. Vaccines and coronavirus are being developed. Several interventions were also established to support COVID- 2019 patients in oxygen therapy (major intervention treatment), antivirals (Lopinavir, Ritonavir, Ribavirin, Favipiravir (T-705) [23,24].

Telemedicine provides clinical resources through the exchanging of knowledge for diagnosis, study, assessment and ongoing education of medical service providers, by all the health practitioners who are using the ICTs. Tele-health means care providers and programs

delivered by medical practitioners in general, including nurses, pharmacists etc [25]. Telemedicine is a part of the tele-health system [25]. Telemedicine is 'a tool to support your medical welfare by two-way, real-time, immersive contact between the patient and the doctor at a remote location,' the Centers for Medicare and Medicaid Services (CMS) states [26].

Telemedicine's roots can be traced back to the use of old hieroglyphs as well as scrolls to exchange health-related facts, including diseases or epidemics [27]. Although the word "healing from far away" was coined at the end of the 1970's, telemedicine was accepted in different parts of the world in the early 2000s. In the last few decades, technological advances have greatly enhanced internet usability and continuity of treatment. However, owing to high regulatory laws and the absence of supporting payment systems, telemedicine also needs to be broadly applied [28].

Telemedicine is becoming more available than ever with the advent of smartphone and computer technology. The Pew Research Center reports from 2019 survey that 90% of Americans use the Internet [29]. This growth in access to cell technology was crucial for telemedicine. Telemedicine use in the United States has increased exponentially. The proportion of US hospitals connected to patients using video and other technologies rose from 35% to 76% from 2010 to 2017 [30]. An increase of 53 percent in telemedicine insurance claims has been announced by the American Medical Association in 2016 - 2017. This is probably the reason why telemedicine is increasingly successful, because today doctors are able to provide practically more and more services [31].

Patients view results, refill medicines and email messages directly to their doctor via these programs. We also have the ability, through live streaming, also called synchronous telemedicine, to communicate with providers in real time. We can also exchange images, laboratories or test findings such that the latter interpretations can be called store and advance or asynchronous telemedicine. We can also share images. Finally, we have used telemedicine measures to further enhance the telemedicine environment for both patients and the wearable sensors, such as mobile cameras, optical stethoscopes, ophthalmoscopes and otoscopes [32].

Telemedicine will increase access to quality, cost-effective treatment for patients during the present pandemic by retaining physical distance to the safety of patients and providers alike. Text, email and cell phone applications and data on wearable devices can also be used for sharing information among patients and clinicians in addition to virtual visits [33]. The need for this service is moving quickly and in the face of the present pandemic is growing.

The accelerated development of the disease poses the entire world with a real problem. When citizens' normal potential is surpassed, health providers and policymakers are battling. Social distance action will benefit and sustain health care services, particularly in the fields of public health, preventative health and clinical practice [34,35]. One of the most effective strategy to minimise and alleviate the progress of the epidemic is social distance interventions.

Increasing tele-health health services are practicable and telemedicine offers a way to provide patients with medical treatment during this global pandemic [36]. In order to allow increased use of telehealth systems, the US Centers for Disease Control and Prevention, many government agencies for public health, several European Union countries and China have changed current rules and regulations and have encouraged telehealth as part of the response to the new coronavirus [37].

Role during pandemic

Following the COVID-19 pandemic, telemedicine was actively taken into account in the provision of health care across countries. It has been an effective method in taking care of COVID-19 patients while enhancing efficiency for health professionals and patients. The exponential increase in the number of cases in the population with many cases of home isolation is a feasible choice for monitoring and prompt reference. Telecommunications platforms are used in the monitoring and treatment management of asymptomatic/mild COVID-19 cases during domestic home isolation. Primary care providers' trial of patients would ensure that clinical and logistics facilities are available for patients who most need them [38].

In the context of the viral pandemic, telemedicine has become a method for delivering health updates not only to sick but also to non-infected people [39]. Telemedicine was used to evaluate respiratory symptoms in patients with COVID-19 that may be a component of an early infection presentation of COVID-19 [40]. Screenings may also be performed by telemedicine for suspicious patients in disadvantaged populations such as poor elderly persons in nursing homes, shelters, etc., if they are shown to be in general good health then teleconsultations can take place every day and avoid more disclosure of other health workers [41].

Telemedicine can have different forms

- Online consultations: telecare (telephone, videoconferencing) of patients reporting symptoms or seeking advice on diseases which doctors with household limitations can also use; Foreign triage - patient sorting until they reach the emergency room [42].
- Telemonitoring/screening: electronics collecting, transforming, evaluating, and reporting patient health results, such as blood pressure, oxygen and respiratory rates to a medical team; Symptom screening of patients answering particular questions [42].
- Sensors: Such as GPS trackers in remote platforms to allow users to conveniently avoid potentially dangerous locations.
- Chatbots: for recommendations, FAQs, and connecting at-risk patients to a doctor.

In its guidelines on key facilities for enhancing health systems response to COVID-19, the World Health Organization has cited telemedicine [43]. It can be used in forward triages where it is possible to test patients before approaching the health center [44]. Updating their intermediate guidelines on infection preventing and emphasizing telemedicine facility introduction to minimise the risk of spread [45] was done at the Center for Disease Control and Prevention (CDC) in the USA. This would help to identify and move patients without direct interaction in early stages, thus reducing the risk of infection for health professionals and the public.

International efforts

Telemedicine systems in China have reduced mortality rates and lowered COVID-19 rates in the province of Shangdong. Telemedicine provided advice for preventing and treating society and the medical personnel and thus played an important role in monitoring COVID-19 in this Province, by teaching, contact and remote consultation [46]. In order to capture, convert and evaluate patient health data such as the amount of oxygen, the breathing rhythm and the pain accurately, the handheld telemedicine devices are used, reporting data to the attending physician. That then helps reduce the chance of contamination and the possible transfer of infections to the nurse and doctors, preventing close contact with the body [46].

In 2012, the Italian Telemedicine Protocols were adopted in Italy in the context of the pandemic to encourage increased usage across the country of telemedicine technology. For patients who had reported COVID-19 infection without the need for prior registration the Health Ministry in France approved the repayment of video tele-consultation and tele-expertise by the National Health Insurance (NHI). Increased pandemic incentives for nurse participating in patient tracking. Since the pandemic, 44% of general practitioners had at least one tele-control consultation in Paris [48].

Despite the efforts to prevent the spread of the virus by social distancing and strict lock-out measures, India has seen an increase in COVID-19 cases. In order to minimise direct physician communication during the pandemic, the Indian Government has introduced telemedicine. It stresses medical ethics values and the ethical standards of privacy and confidentiality in accordance with the Indian Medical Council Act. The central and state governments have later implemented several policies to improve national telemedicine services [49]. A first institute has begun to provide consultations with patients on non-COVID-19 disorders through telemedicine in the Indian Institute

of Medical Sciences. Calldoc and DR YSR Telemedicine are country efforts to provide OPD treatment throughout COVID-19. The customer can communicate to the doctor via the use of this smartphone app through video, audio or conversation, and patients can upload the test reports for the doctors for inspection. This is done via phone. After consultation, doctors can submit prescriptions on the app [49].

Telemedicine has significant advantages, but it does provide a two-way automated compilation and exchange of sensible health information from healthcare professionals and patients that may pose a security danger, in the form of a fitness promotion, prevention, and the home treatment of chronically-conscious conditions [50]. Legal concerns, such as the lack of a global legal system to provide treatment for health practitioners in various jurisdictions and nations, a lack of patient safety and confidentiality rules, and healthcare professionals are key barriers to telemedicine [51].

Conclusion

Tele-medicine has a significant role during COVID-19 pandemic. Telemedicine can provide a comprehensive patient care for patients worldwide. Further research should evaluate the safety and effectiveness, in the current quality, of current effects and long-term results of universal use of remote healthcare systems, of continuous experience of telemedicine in the COVID-19 pandemic. COVID-19 pandemic will represent a transition in the healthcare environment with more people embracing teleconsultation and a shift in the country's health care system.

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