

Diagnostic and therapeutic option of Covid-19; A systematic review

Ahmed Mohammed Ahmed AlJohani (1)
Taif Jameel Ahmed Tharwat (2)
Khalid Waleed Mahrous (2)
Rafa Hassan Hashim Alsharif (2)
Reenad Saeid Farghali Ghunaim (2)
Abdulaziz Ali Alghamdi (2)
Ahmed Abdullah AlJohani (2)
Omar Mohammad Almatrafi (2)
Mernan Mohammed Mahrous (2)
Abdullah Majid Alharbi (2)
Osama Abdulsalam Alquliti (2)
Yaser Abdulsalam Alqelaiti (2)
Areej Hesham Al Arabi (3)
Mohammed Abdulaziz Alaryni (4)

(1) Medical Intern, Taibah College of Medicine, Taibah University, Al-Madinah Al-Munawwarah, Saudi Arabia.

(2) Medical Student, Taibah College of Medicine, Taibah University, Al-Madinah Al-Munawwarah, Saudi Arabia.

(3) Medical Resident, Ohud Hospital, Al-Madinah Al-Munawwarah, Saudi Arabia

(4) Senior registrar emergency medicine, King Abdulaziz city, National Guard Hospital, Jeddah, Saudi Arabia

Corresponding author:

Ahmed Mohammed Ahmed AlJohani.

Medical Intern, Taibah College of Medicine, Taibah University, Al-Madinah Al-Munawwarah, Saudi Arabia

Email: Alreefi1996@outlook.com

Received: December 2020; Accepted: January 2021; Published: February 1, 2021.

Citation: Huda Ali Almusa. Diagnostic and therapeutic option of Covid-19; A systematic review World Family Medicine. 2021; 19(1): 126-135 DOI:10.5742/MEWFM.2021.93993

Abstract

Background: The global pandemic of coronavirus has resulted in it causing several respiratory diseases. The mild common cold like illness is one of the major symptoms that represents the clinical presentation of the respiratory infection. Some patients can be asymptomatic while some might have characteristic symptoms in the form of coughs, dyspnoea, and fever. Mostly it affects people aged between 30 to 79 years. Major risk factors are people residing or travelling in the areas where risk of transmission is quite high, old age, and presence of comorbidities. The origin of the virus was linked to the Southern China's Huanan wet market in Huanan. The pathophysiology has not yet been understood properly but the exudative diffuse alveolar is considered as the major reason behind the deaths due to respiratory failure. In order to control the spread there are four different ways currently: quarantine the contact for at least 14 days, screening of travellers, drive-through screening centres, and temperature screening. Isolation, infection management, and symptom management can be the most useful therapeutic approaches.

Methodology: During this research, the systematic review has been done by referring to several studies that showed the data related to the diagnostic and therapeutic approach against Covid-19. During the research it has been -ensured that only the data

from highly qualified authors was used to determine the effective diagnostic and therapeutic options of Covid-19. The inclusion criteria were articles available in English language, the most recent and highly rated studies, and articles having statistics. The exclusion criteria were data which is available without clear statistics, articles other than those in the English language, data of high risk and low quality, and the data not able to provide the basic diagnostic and therapeutic options of Covid-19. It has been ensured that the quality of data should be maintained in order to establish quality research.

Discussion: Covid-19 diagnostic options are oral and nasal PCR, rapid diagnostic test, serologic test, plain X-rays, Magnetic resonance imaging (MRI), CT scanning, ultrasonography, and nuclear scanning. The therapeutic options are pharmacological drugs (like chloroquine, hydroxychloroquine, corticosteroids, sirolimus, tocilizumab), airway assistance ventilation, and vaccination.

Conclusion: Covid-19 is on the verge of constant increase and is impacting many people around the globe. Currently, there is no proper treatment for covid-19 as a result of which everyday preventive actions and vaccination are the best things that an individual can do in order to prevent the spread of covid-19.

Key words: Covid-19, corona virus, SARS-CoV-2, diagnostic, therapeutic.

Introduction

The global pandemic of coronavirus has resulted in several respiratory diseases. The mild common cold like illness is one of the major symptoms that represents the clinical presentation of the respiratory infection (Yonker, et al, 2020). Some patients can be asymptomatic while some might have characteristic symptoms in the form of coughs, dyspnoea, and fever (Ellington, et al, 2020).

There are around 87% of confirmed cases in China that are aged between 30 to 79 years (Bi, et al, 2020). However, there are only 3% of people whose ages are above 80 years. In the case of Italy, the prevalence and the median age of the coronavirus cases were much higher than that of China. When it comes to the healthcare workers, the infection rate was different in different locations. For example, the infection rate in the healthcare workers in US was 18%, 9% in Italy and almost 6% in the Netherlands. However, the infection rate Saudi Arabia is 5.6% with a total of 347,000 cases till now (Sutcliffe, et al, 2016). As a comparison, the United States currently has over 24 million cases and in the UK, the total reported cases is over 3.4 million (Geldsetzer, 2020). Hence, there is

an extensive need for epidemiology around the world. One of the major risk factors in the case of Covid-19 is linked with the people residing or travelling in the areas where risk of transmission is quite high. Along with this, old age is another major risk factor for infection (Liu, et al, 2020). The presence of comorbidities is another major risk factor for infection. Similarly, the environmental and the behavioural factors that are directly associated with the individual who is infected are also the risk factors (Hui, et al, 2018). The etiology can be used in order to find out different important aspects of covid-19. One of the major aspects is the origin of the virus. There are a number of patients who have been reported at the earlier stages of the coronavirus to be linked to Southern China's Huanan wet market . During the early stages, it was reported that around 55% out of 425 confirmed cases are from this wet market area (Li, et al, 2020). A wet market is a market in China where fish and meat are butchered and sold. This is the market from where the first few cases of Covid-19 were reported.

Pathophysiology in the case of coronavirus has not been understood properly but it is confirmed that the extra pulmonary manifestations are associated directly with this infection (Zheng, et al, 2020). The exudative diffuse alveolar is considered as the major reason behind the increase in numbers of the covid-19 patients who are dying due to respiratory failure (Menter, et al, 2020). The exudative diffuse alveolar is the global respiratory injury and the number of these types of injuries has increased since the outbreak of covid-19 (Menter, et al, 2020).

There are different classifications taken by the World Health Organization in order to know covid-19 disease's severity properly. Mild illness is among those and common symptoms in mild illness include fatigue, cough, myalgia, and fever. Along with this, there are some other nonspecific symptoms in the form of headache, nausea, loss of smell and taste, and throat infection. Similarly, in moderate disease the adults find different signs of clinical lung infection but not a single sign of severe pneumonia (Feng, et al, 2020). Most of the children find it hard to breathe and do not find any sign of severe pneumonia. Similarly, in cases of severe disease, the adults will find some clinical signs of pneumonia whereas the children also face the clinical signs of pneumonia in case of severe disease. However, in the case of critical disease the acute respiratory distress syndrome is present. Along with this, some other complications in the form of acute coronary syndrome and delirium are also present in cases of critical disease (Schwartz, et al, 2018). Screening includes four different methods. The first one is management of contacts. In order to manage the contacts properly, it is necessary to make sure that the contacts remain quarantined and properly monitored for at least 14 days. The second one is the screening of travellers. The screening of travellers is still recommended in some of the countries where the borders are open. Drive through screening centres are now set up in the majority of the countries for safer and efficient screening (Campbell, 2020). In cases of temperature screening, different temperature screening products and thermal cameras are used as reliable resources for efficient screening (Mitra, et al, 2020).

One of the major aspects of diagnosis of covid-19 is early recognition and timely diagnosis. Another major aspect of diagnosis is the higher index of clinical suspicion. The establishment of covid-19 pathways on local and national level is significant. The screening of patients is also one of the major diagnostic techniques that can prevent covid-19 from further spreading (Zanardo, et al, 2020).

Isolation, infection management, and the symptom management are the most useful therapeutic approaches that can be helpful to use against an infection like Covid-19 (Hao, et al, 2020). Any vaccine for the cure of covid-19 has not yet been sufficiently tested in most parts of the world as a result of which these three are still the most appropriate therapeutic approaches available for reducing the incidence and prevalence of this infection (Zhu, et al, 2020).

The research aim for this paper was to evaluate and assess appropriate therapeutic approaches against Covid-19; hence, based on this aim, the research objectives are as follows;

- To outline and identify a wide range of diagnostic and therapeutic options for Covid-19.
- To analyse diagnostic and therapeutic options for Covid-19.
- To compare different types of diagnostic and therapeutic options for Covid-19.

Research Methodology

Search Strategy

During this research, the systematic review was done by referring to several studies that showed the data related to the diagnostic and therapeutic approach against Covid-19. For identifying the approaches which can be used to tackle the emerging uncertainties regarding Covid-19, search strategy was selected as the most appropriate strategy. Search strategy during this research has been of massive significance in order to find the accurate diagnostic and therapeutic options against Covid-19. The studies from different scholarly articles have been used to make sure that the most accurate data of highly authorized scholars was used. Along with this, the studies from the Web of Science, PubMed, and Research Gate have been retrieved to strengthen the research. Furthermore, search strategy has enabled the use of electronic database citations which are vital for gaining reliability and validity in this report (Torres, et al, 2019). Along with this, during the citation the snowball search strategy was used which has further strengthened the quality of data and has helped find and critique the efficient diagnostic and therapeutic option for Covid-19.

Study Selection and Screening

There are numerous studies available on the internet regarding the diagnostic and therapeutic options of Covid-19. However, during the research it has been ensured that only the data from the highly qualified authors was used to find out the effective diagnostic and therapeutic options of Covid-19. In order to do so, the duplicate studies have been removed just to maintain the quality of the research and to make the research more valuable. In this research, several investigators were used in order to screen the selected studies to maintain the quality of the data. Along with this, another major reason behind the screening of the selected data is to remove the effect of plagiarism. The screening was done in such a way that it has removed the plagiarism from the data which was selected from several scholarly articles. Moreover, the screening during the research was also significant in order to properly undertake the eligibility criteria for the selected studies. Undertaking the eligibility criteria of the selected studies is one of the best ways to maintain quality in the research.

Inclusion and Exclusion Criteria

The highly authorized data is included in this research to maintain the quality of the research. Along with this, the studies which are available in the English language are included in this research. The most recent and highly

rated studies are included in this research to determine the diagnostic and therapeutic options for Covid-19. Moreover, articles having statistics are mostly preferred and included so that a better insight into numbers and quantity of Covid-19 cases can be created. Furthermore, the data which is available without clear statistics were excluded. This was in order to find out the actual diagnostic and therapeutic options for Covid-19, as statistics play a major role, as an approach which can be used against a wide population of Covid-19 patients as the best option (Soler, et al, 2020). Furthermore, the data which was not able to provide the basic diagnostic and therapeutic option of Covid-19 was excluded.

Quality Assessment

Maintaining the quality of the research is one of the major focus of this research. While screening and the selecting of the data, it has been made sure that the quality of data should be maintained in order to establish the quality research. The data from certain authorized articles has been used in this research in order to maintain the quality of data. The ethical data has been selected to maintain the quality of the research. Different group members have been given the role of reviewing the research in order to review the research properly and also to avoid major confidential issues from the research as well.

Discussion

Molecular testing

The OraRisk Covid-19 is considered as the real-time test for the polymerase chain reaction (PCR). Usually, the OraRisk has been done for the qualitative detection of the nucleic acid in the form of oral and nasal swab specimens that are being collected in the universal transport media (Punyadeera, and Slowey, 2019). The paired sample study is used most of the times in order to collect data for both Oral and Nasal PCR, the data which is mostly collected for the asymptomatic and symptomatic patients of Covid-19.

The serologic test is another testing method that is used to detect the components of plasma and the serum of the blood. Most of the time, the serologic test is designed specifically to minimize the cross reactivity. Furthermore, in the case of the Covid-19 the serologic tests are designed in order to detect the diseases of less severe illness and the best example can be a common cold. The serologic tests have the sensitivity of around 96% and the specificity of more than 99% (Pallett, et al, 2020). This percentage of sensitivity and specificity of the serologic test is based completely on its performance evaluation. Moreover, the serologic tests can also be used in order to properly identify the infections in people that are infected within the time period of 1 to 3 weeks. Along with this, CDC is another major strategy that is being used by the doctors in the United States in the serologic testing of the Covid-19 patients. The CDC approach has been used by to better understand the number of people in the US who have been affected because of the widespread contagion of Covid-19. Moreover, CDC approach has also been of massive significance in order to find out the speed the

corona virus is spreading and the people who are being infected due to Covid-19 in the United States (Zhang, et al, 2020).

Rapid diagnostic test is another major medical diagnostic test and is highly rated in the medical field. The rapid diagnostic test is a diagnostic test which is very quick and simple to perform. One of the main aspects of rapid diagnostic test is that it is available for every kind of emergency medical screening (Dinnes, et al, 2020). Similarly, you can easily utilize the rapid diagnostics test even with limited resources available. The rapid diagnostic test uses the cassette and the dipstick format which helps it to provide the result of the test within 20 minutes. This quick provision of results makes it different from other diagnostic tests. When it comes to Covid-9, the rapid diagnostics test is still not the perfect option for the medical staff. Many medical staff are using it, but the results are often reviewed again after the test in order to find out whether they are accurate or not.

The use of plain X-rays is mostly considered as the best way of chest imaging. However, there are other ways through which the chest imaging can be done and that includes the Magnetic resonance imaging (MRI), CT scanning, ultrasonography, and nuclear scanning. All the other procedures are non-invasive imaging procedures except the MRI. The presence of metallic objects during the MRI makes it different from the other methods and procedures of chest imaging (Caraiani, et al, 2018). Along with this, the presence of permanent pacemakers makes the MRI much more secure because whenever the gadolinium is used during MRI it increases risk as the kidneys of a patients can be under risk. So, the presence of permanent pacemakers makes the chest imaging through MRI much more effective and safer. In case of Covid-19, chest imaging is useful in order to find out whether the patient has respiratory symptoms or not.

Limitation of the diagnostic tests

The three major diagnostic tests for Covid-19 are the serologic test, Rapid diagnostic tests, and chest imaging. All of these three methods have a variety of significance but all of them have some limitations as well. The major limitation of the Serologic tests is that whenever the prevalence of the disease is low there is a massive risk in the accuracy of the results (Vodicar, et al, 2020). It becomes quite hard to find out whether the reports are true or false. Similarly, when it comes to the rapid diagnostic tests, the reliability of the rapid diagnostic tests in diagnosing the Covid-19 patients has a big question mark and it needs to be improved in order to strengthen its applicability towards Covid-19 diagnosis. Similarly, the major limitation of chest imaging is that it fails to diagnose every disease. For example, in one study, 85% of the patients who tested positive for COVID-19 had negative chest x-rays, 50% of them were asymptomatic the other half had mild symptoms. Identifying patients with COVID-19 positive RT-PCR is essential in containing the disease by isolating the patients to prevent further spread of the disease. (Rousan LA et al, 2020).

Table 1 : Comparison between diagnostic tests

	Serologic test	Rapid diagnostic test	Chest imaging
Role	Detects the components of plasma.	Every kind of emergency medical screening	Pulmonary disease management and diagnosis
Importance	Minimizes cross reactivity	Provides the result of the test within 20 minutes	In properly determining infections
Importance in case of Covid-19	Detects the diseases of less severe illness e.g. cold	Not accurate in case of Covid-19	For detecting respiratory symptoms.
Limitation	During low prevalence, it lacks accuracy	Not reliable in case of Covid-19 diagnosis.	Fails to diagnose every disease

Table 2 : Comparison between the oral PCR and Nasal PCR

Oral PCR	Nasal PCR
Oral PCR is a real time test	Most used test in the clinical laboratories
It is polymerase chain reaction	Nasal PCR is very sensitive
The use of qualified clinical laboratory is mandatory for the Oral PCR testing	Nasal PCR is generally used to trace genetic material of the coronavirus.

Management of each stage with great emphasis on the management of pregnant women

The current pandemic of covid-19 has brought about intense respiratory conditions. It has introduced remarkable difficulties to the medical care frameworks in pretty much every nation around the globe. At present, there are no compelling immunization or strict medicine-based approach against the infection. Without conclusive and explicit vaccines, systems including early analysis, opportune detailing, disconnection, and strong medicines are significant lines of activities against COVID-19 diseases. Current social work including convenient arrival of epidemic data and support of social requests and individual practices, for example, improving individual cleanliness, wearing facial masks, sufficient rest, and keeping rooms ventilated are some of the first line activities against COVID-19 pandemic (Yin, et al, 2020). Under these circumstances of covid-19, managing the pregnant women is also a challenge and for that purpose a step by step guide to achieving better healthcare of pregnant women involves the usage and impact of therapeutic pharmacological drugs, airway assistance ventilation, and the vaccination strategy.

Therapeutic pharmacological drugs

Currently, there is no major vaccine available but in most parts of the world there are some therapeutic pharmacological drugs that can be of great significance in order to prevent and treat different sick covid-19 patients. However, in order to manage the pregnant

women, therapeutic pharmacological drugs can be used. Therapeutic pharmacological drugs have also been approved by the FDA in the US and medical professionals are allowed to use these therapeutic pharmacological drugs to treat pregnant women even under the radar of being covid-19 patients (Drożdżal, 2020). Chloroquine and hydroxychloroquine are therapeutic pharmacological drugs with a long history of clinical use. In pregnancy it found that Hydroxychloroquine Fetal risk cannot be ruled out, Fetal ocular toxicity have been reported, Hydroxychloroquine use should be avoided during pregnancy, unless absolutely indicated and only after assessing maternal benefit and fetal risk. While Lactation No adverse effects of Hydroxychloroquine in infants exposed during the lactation period have been observed. Although the benefits of breastfeeding outweigh the theoretical risk to the infant, the nursing infant should always be monitored for adverse effects. Chloroquine in Pregnancy they found that Fetal risk cannot be ruled out. Fetal ocular toxicity have been reported. Administer chloroquine during pregnancy recommended only if the potential maternal benefit outweighs the potential fetal risk. While on Lactation American Academy of Paediatrics and the WHO consider chloroquine compatible during breastfeeding. WHO recommends against use in G6PD-deficient infants, and advises monitoring premature infants and neonates for side effects such as hemolysis and jaundice. Due to the potential for adverse events in the nursing infant, advise the nursing mother to either discontinue nursing or discontinue chloroquine therapy, considering the clinical benefit of the drug to the mother. (Saudi MOH Corona virus disease 19 guideline, 2020).

Alongside this, several supporting agents are also the therapeutic pharmacological drugs which can be helpful in order to manage the cases of pregnant women. Without the vaccine and any other medications there are different supporting agents which can be utilized for strong consideration for managing pregnant women during the global pandemic of covid-19 (Mhatre, et al, 2020). The different treatments in the form corticosteroids, sirolimus, tocilizumab etc. can be used in order to manage the corona infused pregnant women. A few of these treatments like that of tocilizumab can be regulated with an end goal to dull the cytokine storm regularly observed during the pregnancy of the women. The ideal planning of managing pregnant women during these kinds of challenging situations is yet to be recognized. Thoughtfully, impeding cytokine creation before it advances to an overstated level would appear to be therapeutic pharmacological drugs which can be utilized in order to manage the pregnant women who remain the most vulnerable in the covid-19 pandemic situations (de Almeida, et al, 2020).

Traditional herbal drugs are also therapeutic pharmacological drugs that can play a role in managing corona in pregnant women in the best possible way. One of the main challenges for the healthcare industry during this pandemic is the management of the pregnant women due to them being in the most vulnerable condition possible; however, countries like South Korea and China have used traditional herbal drugs to great use in order to provide relief and better treatment for pregnant women properly (Mirza, et al, 2020). The medical professionals in these countries believe that traditional herbal medicines have the ability to properly treat the pregnant patients. The best traditional herbal drugs used by the Koreans and the Chinese professionals for the treatment of the pregnant women during this pandemic situation are Radix platypodine, Chromium fortune and Astragalus membranous.

Airway assistance ventilation

Airway assistance ventilation plays a major role whenever airway difficulty is not recognized properly before choice of sedation. There are a few direct preoperative bedside tests that can be performed inside a few minutes to overview the airway course for a pregnant patient. These tests include mouth opening, thyromental distance, Mallampatiscore, atlanto-occipital augmentation, and capacity to extend the mandible. In order to manage pregnant patients in the best possible way, these Airway assistance ventilation tests play a significant role. No single test can continually predict a badly designed Airway ventilation. A blend of these tests is a basic need to enable Airway ventilation and to lessen the probability of adverse outcomes identified within the Airway ventilation. The Airway ventilation of pregnant women can be totally unpredictable (Cook, et al, 2020). It is not just an all-encompassing danger of irritating intubation, in addition there is trouble in keeping up satisfactory cover ventilation for pregnant women. Under the current pandemic situation of Covid-19, pregnant women can be at major risk. Even under the current situations, it is necessary to make sure

that the emergency situation for the pregnant woman is planned in advance along with the availability of proper assistance ventilation.

Along with this, there are two principle airway assistance ventilation systems that play a vital role in order to manage pregnant women during this pandemic situation of covid-19. The principle of airway assistance ventilation systems are positive weight and negative weight ventilation (London, 2020). Positive weight airway ventilation is the overwhelming method of airway ventilatory that can be utilized in the ICU which is of massive significance in the proper management of pregnant women. Starting positive weight airway ventilation could prompt a decrease in preload because of diminished venous return, potentially decreased afterload, and a decrease in cardiovascular yield alongside decreased splanchnic blood stream. Lower cut off points of ordinary oxygen immersion combined with weakness could prompt decrease in oxygen conveyance. Non-obtrusive positive weight airway ventilation through a firmly fitting facemask is a well used ventilatory and oxygenating methodology in the overall ICU populace (Chiera, et al, 2020). It should be utilized uniquely for the proper management of pregnant patients.

Pregnancy is a high metabolic and physiologic state as mentioned earlier, but obese pregnant women are at double the risk during the emergence of covid-19. Anaesthesia for both elective and emergency situations should be planned in advance with a difficult airway cart readily available. If possible, regional anaesthesia with a good block should be the goal for caesarean section. General anaesthesia should be avoided due to difficulty with endotracheal intubation and rapid oxygen desaturation during induction tends to evoke apprehension in even the most competent anaesthesiologists when dealing with the airways in a pregnant woman; the most important reason being pregnancy-related altered anatomy and physiology impacting aesthetic management, the urgent nature of the obstetric practice leading to limited time for adequate aesthetic preparation, and the potential risk of impacting both.

Vaccination Strategy

Covid-19 is still spreading at a rapid pace and the effective vaccines against the coronavirus are still considered as the eventual solution to the different public crises. Most clinical professionals believe that safe and effective vaccines are the best way to beat the coronavirus and to return back to normal lifestyle before the emergence of this virus (Tibbetts, 2020). As a result, many medical professionals around the globe are making agreements with different pharmaceutical companies in order to come up with an effective vaccine that can help the world beat the coronavirus and return to what it was before the occurrence of this virus. The efficacy, safety, and the quality are considered as the cornerstones of any vaccine. Medical professionals have been advised to monitor the effectiveness of the vaccine. Alongside this, keeping the health of affected covid-19 patients in mind is another major factor on which the medical professionals have been

Table 3 : Tabular Representation for management options

Therapeutic pharmacological drugs	Airway assistance ventilation
Clinical experts are permitted to utilize these therapeutic pharmacological drugs to treat pregnant patients.	No emanant setting is considered as the ideal examination of the airway assistance ventilation.
Hydroxychloroquine a) Pregnancy: - Fetal risk cannot be ruled out. Fetal ocular toxicity have been reported. - Hydroxychloroquine use should be avoided during pregnancy, unless absolutely indicated and only after assessing maternal benefit and fetal risk. b) Lactation: - No adverse effects of Hydroxychloroquine in infants exposed during the lactation period have been observed. Although the benefits of breastfeeding outweigh the theoretical risk to the infant, the nursing infant should always be monitored for adverse effects.	Preoperative bedside tests that can be performed inside a couple of months to outline the airway in a pregnant patient (Smit, et al, 2020).
Chloroquine a) Pregnancy: - Fetal risk cannot be ruled out. Fetal ocular toxicity have been reported - Administer chloroquine during pregnancy only if the potential maternal benefit outweighs the potential fetal risk b) Lactation: - American Academy of Paediatrics and the WHO consider chloroquine compatible during breastfeeding. - WHO recommends against use in G6PD-deficient infants, and advises monitoring premature infants and neonates for side effects such as hemolysis and jaundice. - Due to the potential for adverse events in the nursing infant, advise the nursing mother to either discontinue nursing or discontinue chloroquine therapy, considering the clinical benefit of the drug to the mother.	Airway ventilation lessens the probability of adverse outcomes identified while managing the pregnant women.
Best way of dealing with the pregnant ladies during this sort of a difficult circumstance is yet to be perceived; however, hindering cytokine creation is as yet the best therapeutic pharmacological drug accessible for the best possible management of pregnant women in the Coronavirus circumstance.	Emergency circumstances for pregnant women should be arranged ahead of time alongside the accessibility of the best possible airway assistance ventilation.
Radix platypodine, Chromium fortune and Astragalus membranous are the best traditional herbal drugs used to manage the pregnant women properly (Yang, et al, 2020).	Positive weight airway ventilation can be utilized in the ICU while managing the pregnant women during these crunch pandemic situations.

advised to monitor the effectiveness of the vaccine. Alongside this, keeping the health of taffected covid-19 patients in mind is another major factor on which the medical professionals have been asked to take note of during the vaccine development.

Under the current situation, the Americans and the Chinese have come up with different vaccination strategies that have somehow helped them in finding out the decrease incidence of the disease . America is one of those countries that has been affected badly by the global covid-19 pandemic. Hence, vaccine for covid-19

infection in United States is mandatory. As a result of which, Moderna a company in United States is developing avaccine considered as 94% effective and has the ability to ward off the virus completely . Yet we need to do more study after distributing the vaccine to large number of population. When it comes to China, the vaccine in China has already been tested and approved. The Chinese have come up with the Sinovac vaccine that they claim has the ability to kill different viral particles in order to completely expose the immune system of the body without even risking some of other serious disease response (Yamamoto, et al, 2020).

When it comes to the vaccination strategy, the first and the major strategy is the routine vaccination and the main goal of the routine vaccination is to eliminate and eradicate the virus (Alonge, 2020). Vaccination is actually the need of almost every country around the world at the moment in order to keep their daily routine on track and they have high expectations from it. However, some health institutions do prefer to observe the clinical trails more before approve the available vaccines now and before encouraging their population to get it. The number of cases in most parts of the world are continuously on a verge of increase and the

main objective behind the development of vaccine is to reduce the number of covid-19 cases and in order to do so, response to the disease outbreak will play a an important role. Supplement immunisation activities is another vaccination strategy which can be of great significance in order to eliminate the disease where the routine vaccine has failed to make its mark. The strategy of supplement immunisation activities is useful for the development of the advanced vaccines which are applied when the routine vaccine fails.

Table 4: Tables for comparison between different vaccination approaches

Vaccine Strategies	Goals
Routine vaccination	To eliminate and eradicate the coronavirus completely from the human body.
Response to the disease outbreak	To reduce the coronavirus cases in a particular area.
Catch up vaccination	To prevent the individuals whose vaccination has been delayed
Supplemental immunisation activities	To eliminate the diseases that are not prevented by the routine vaccination.

Recommendations and Conclusion

Covid-19 is on the verge of constant increase and is impacting many people around the globe. Currently, there is no proper treatment of covid-19 available as a result of which everyday preventive actions are the best thing that an individual can do in order to prevent the spread of covid-19. The everyday preventive actions will play a vital role in stopping the spread of covid-19. Hence, it is recommended that the person who is sick should stay at home. Everyone should use masks to cover their faces. Covering the face with mask is still considered as the best and the most effective way of preventing the covid-19 disease from entering the human body (Liang, 2020). Alongside this, washing hands throughout the day is another preventive action that is recommended by the World Health Organization to stop the flow of covid-19. Furthermore, it is also recommended that touched surfaces and objects should be cleaned on a regular basis. These everyday preventive actions are mandatory under the current situation because of no proper vaccine yet discovered for the prevention of covid-19 (Kayrite, et al, 2020). Hence, it is mandatory for everyone to make sure that they are taking these everyday preventive actions to stop the spread of covid-19. However, for future benefits, the development of different drugs and vaccines are mandatory otherwise it is difficult to get rid of this global pandemic.

The worldwide pandemic of Covid-19 has brought about many cases of respiratory disease. A few patients can be asymptomatic while some may have trademark manifestations such as coughs, dyspnoea, and fever. One of the significant diagnosis of coronavirus is the early recognition and testing . Another significant aspect is a high index of clinical suspicion. The spread of coronavirus pathways on neighbourhood and public level is huge. The screening of patient is likewise one of the significant

determinations that can stop further spread. Isolation, infection management, and the symptom management can be the most valuable restorative strategies against a disease like Covid-19.

Most countries around the world have controlled the flow of covid-19 to some extent however, none of them have fully eradicated it. Most medical specialists believe that in order to end the pandemic vaccination is the best and the most appropriate option. There are different vaccination strategies that will be used during the development of vaccine that will play a massive role in order to eliminate the coronavirus from the human body. In the end, it can be concluded that, despite the fact that vaccination can help remove the coronavirus completely from the human body, everyday preventive actions is the best way to go ahead.

References

- Yonker, L.M., Neilan, A.M., Bartsch, Y., Patel, A.B., Regan, J., Arya, P., Gootkind, E., Park, G., Hardcastle, M., John, A.S. and Appleman, L., 2020. Pediatric severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2): clinical presentation, infectivity, and immune responses. *The Journal of pediatrics*, 227, pp.45-52.
- Ellington, S., Strid, P., Tong, V.T., Woodworth, K., Galang, R.R., Zambrano, L.D., Nahabedian, J., Anderson, K. and Gilboa, S.M., 2020. Characteristics of women of reproductive age with laboratory-confirmed SARS-CoV-2 infection by pregnancy status—United States, January 22–June 7, 2020. *Morbidity and Mortality Weekly Report*, 69(25), p.769.
- Bi, Q., Wu, Y., Mei, S., Ye, C., Zou, X., Zhang, Z., Liu, X., Wei, L., Truelove, S.A., Zhang, T. and Gao, W., 2020. Epidemiology and transmission of COVID-19 in 391 cases and 1286 of their close contacts in Shenzhen, China: a retrospective cohort study. *The Lancet Infectious Diseases*.

4. Sutcliffe, C., 2016. Finance and occupational pensions: theories and international evidence. Springer.
5. Geldsetzer, P., 2020. Knowledge and perceptions of COVID-19 among the general public in the United States and the United Kingdom: A cross-sectional online survey. *Annals of internal medicine*.
6. Liu, T., Liang, W., Zhong, H., He, J., Chen, Z., He, G., Song, T., Chen, S., Wang, P., Li, J. and Lan, Y., 2020. Risk factors associated with COVID-19 infection: a retrospective cohort study based on contacts tracing. *Emerging microbes & infections*, 9(1), pp.1546-1553.
7. Hui, D.S., Azhar, E.I., Kim, Y.J., Memish, Z.A., Oh, M.D. and Zumla, A., 2018. Middle East respiratory syndrome coronavirus: risk factors and determinants of primary, household, and nosocomial transmission. *The Lancet Infectious Diseases*, 18(8), pp.e217-e227.
8. Li, Q., Guan, X., Wu, P., Wang, X., Zhou, L., Tong, Y., Ren, R., Leung, K.S., Lau, E.H., Wong, J.Y. and Xing, X., 2020. Early transmission dynamics in Wuhan, China, of novel coronavirus-infected pneumonia. *New England Journal of Medicine*.
9. Zheng, K.I., Feng, G., Liu, W.Y., Targher, G., Byrne, C.D. and Zheng, M.H., 2020. Extrapulmonary complications of COVID-19: A multisystem disease? *Journal of Medical Virology*.
10. Menter, T., Haslbauer, J.D., Nienhold, R., Savic, S., Hopfer, H., Deigendes, N., Frank, S., Turek, D., Willi, N., Pargger, H. and Bassetti, S., 2020. Postmortem examination of COVID-19 patients reveals diffuse alveolar damage with severe capillary congestion and variegated findings in lungs and other organs suggesting vascular dysfunction. *Histopathology*, 77(2), pp.198-209.
11. Feng, Z., Yu, Q., Yao, S., Luo, L., Zhou, W., Mao, X., Li, J., Duan, J., Yan, Z., Yang, M. and Tan, H., 2020. Early prediction of disease progression in COVID-19 pneumonia patients with chest CT and clinical characteristics. *Nature communications*, 11(1), pp.1-9.
12. Schwartz, G.G., Steg, P.G., Szarek, M., Bhatt, D.L., Bittner, V.A., Diaz, R., Edelberg, J.M., Goodman, S.G., Hanotin, C., Harrington, R.A. and Jukema, J.W., 2018. Alirocumab and cardiovascular outcomes after acute coronary syndrome. *New England Journal of Medicine*, 379(22), pp.2097-2107.
13. Campbell, J.R., Uppal, A., Oxlade, O., Fregonese, F., Bastos, M.L., Lan, Z., Law, S., Oh, C.E., Russell, W.A., Sulis, G. and Winters, N., 2020. Active testing of groups at increased risk of acquiring SARS-CoV-2 in Canada: costs and human resource needs. *CMAJ*, 192(40), pp.E1146-E1155.
14. Zanardo, M., Martini, C., Monti, C.B., Cattaneo, F., Ciaralli, C., Cornacchione, P. and Durante, S., 2020. Management of patients with suspected or confirmed COVID-19, in the radiology department. *Radiography*, 26(3), pp.264-268.
15. Hao, F., Tam, W., Hu, X., Tan, W., Jiang, L., Jiang, X., Zhang, L., Zhao, X., Zou, Y., Hu, Y. and Luo, X., 2020. A quantitative and qualitative study on the neuropsychiatric sequelae of acutely ill COVID-19 inpatients in isolation facilities. *Translational psychiatry*, 10(1), pp.1-14.
16. Zhu, C.Q., Gao, S.D., Xu, Y., Yang, X.H., Ye, F.Q., Ai, L.L., Lv, R.C., Zhang, B., Li, Y., Lv, H. and Liu, Y.S., 2020. A COVID-19 case report from asymptomatic contact: implication for contact isolation and incubation management. *Infectious diseases of poverty*, 9(1), pp.1-7.
17. Torres, N.F., Chibi, B., Middleton, L.E., Solomon, V.P. and Mashamba-Thompson, T.P., 2019. Evidence of factors influencing self-medication with antibiotics in low and middle-income countries: a systematic scoping review. *Public health*, 168, pp.92-101.
18. Soler, M., Estevez, M.C., Cardenosa-Rubio, M., Astua, A. and Lechuga, L.M., 2020. How nanophotonic label-free biosensors can contribute to rapid and massive diagnostics of respiratory virus infections: COVID-19 Case. *ACS sensors*, 5(9), pp.2663-2678.
19. Punyadeera, C. and Slowey, P.D., 2019. Saliva as an emerging biofluid for clinical diagnosis and applications of MEMS/NEMS in salivary diagnostics. In *Nanobiomaterials in Clinical Dentistry* (pp. 543-565). Elsevier.
20. Pallett, S.J., Rayment, M., Patel, A., Fitzgerald-Smith, S.A., Denny, S.J., Charani, E., Mai, A.L., Gilmour, K.C., Hatcher, J., Scott, C. and Randell, P., 2020. Point-of-care serological assays for delayed SARS-CoV-2 case identification among health-care workers in the UK: a prospective multicentre cohort study. *The Lancet Respiratory Medicine*, 8(9), pp.885-894.
21. Zhang, X., Ji, Z., Yue, Y., Liu, H. and Wang, J., 2020. Infection risk assessment of COVID-19 through aerosol transmission: a case study of South China Seafood Market. *Environmental science & technology*.
22. Dinnes, J., Deeks, J.J., Adriano, A., Berhane, S., Davenport, C., Dittrich, S., Emperador, D., Takwoingi, Y., Cunningham, J., Beese, S. and Dretzke, J., 2020. Rapid, point-of-care antigen and molecular-based tests for diagnosis of SARS-CoV-2 infection. *Cochrane Database of Systematic Reviews*, (8).
23. Caraianni, C., Dong, Y., Rudd, A.G. and Dietrich, C.F., 2018. Reasons for inadequate or incomplete imaging techniques. *Medical Ultrasonography*, 20(4), pp.498-507.
24. Vodičar, P.M., Valenčak, A.O., Zupan, B., Županc, T.A., Kurdija, S., Korva, M., Petrovec, M., Demšar, J., Knap, N., Štrumbelj, E. and Vehovar, V., 2020. Low prevalence of active COVID-19 in Slovenia: a nationwide population study of a probability-based sample. *Clinical Microbiology and Infection*, 26(11), pp.1514-1519.
25. Yin, Y., Li, D., Zhang, S. and Wu, L., 2020. How Does Railway Respond to COVID-19 Spreading?—Countermeasure Analysis and Evaluation around the World.
26. Drożdżał, S., Rosik, J., Lechowicz, K., Machaj, F., Kotfis, K., Ghavami, S. and Łos, M.J., 2020. FDA approved drugs with pharmacotherapeutic potential for SARS-CoV-2 (COVID-19) therapy. *Drug resistance updates*, p.100719.
27. Saudi MOH Corona virus disease 19 guideline
28. Mhatre, S., Srivastava, T., Naik, S. and Patravale, V., 2020. nAntiviral Activity of Green Tea and Black Tea Polyphenols in Prophylaxis and Treatment of COVID-19: A Review. *Phytomedicine*, p.153286.
29. de Almeida, D.S., Martins, L.D., Muniz, E.C., Rudke, A.P., Squizzato, R., Beal, A., de Souza, P.R., Bonfim, D.P.F., Aguiar, M.L. and Gimenes, M.L., 2020. Biodegradable CA/CPB electrospun nanofibers for efficient retention of airborne nanoparticles. *Process Safety and Environmental Protection*, 144, pp.177-185.

30. Mirza, N., Hasnaoui, J.A., Naqvi, B. and Rizvi, S.K.A., 2020. The impact of human capital efficiency on Latin American mutual funds during Covid-19 outbreak. *Swiss Journal of Economics and Statistics*, 156(1), pp.1-7.
31. Lu, J., Gu, J., Li, K., Xu, C., Su, W., Lai, Z., Zhou, D., Yu, C., Xu, B. and Yang, Z., 2020. COVID-19 outbreak associated with air conditioning in restaurant, Guangzhou, China, 2020. *Emerging infectious diseases*, 26(7), p.1628.
32. Cook-Cottone, C., Cox, A.E., Neumark-Sztainer, D. and Tylka, T.L., 2020. Future directions for research on yoga and positive embodiment. *Eating disorders*, 28(4), pp.542-547.
33. London, M.J., 2020. Coronavirus disease 2019 (COVID-19): Airway management, anesthesia machine ventilation, and anesthetic care. UpToDate.
34. Chiera, M., Cerritelli, F., Casini, A., Barsotti, N., Boschiero, D., Cavigioli, F., Corti, C.G. and Manzotti, A., 2020. Heart Rate Variability in the Perinatal Period: A Critical and Conceptual Review. *Frontiers in Neuroscience*, 14.
35. Yang, Y., Islam, M.S., Wang, J., Li, Y. and Chen, X., 2020. Traditional Chinese medicine in the treatment of patients infected with 2019-new coronavirus (SARS-CoV-2): a review and perspective. *International journal of biological sciences*, 16(10), p.1708.
36. Tibbetts, E.A., Wong, E. and Bonello, S., 2020. Wasps use social eavesdropping to learn about individual rivals. *Current Biology*, 30(15), pp.3007-3010.
37. Yamamoto, V., Bolanos, J.F., Fiallos, J., Strand, S.E., Morris, K., Shahrokhinia, S., Cushing, T.R., Hopp, L., Tiwari, A., Hariri, R. and Sokolov, R., 2020. COVID-19: review of a 21st century pandemic from etiology to neuropsychiatric implications. *Journal of Alzheimer's Disease*, (Preprint), pp.1-45.
38. Alonge, O., 2020. What can over 30 years of efforts to eradicate polio teach us about global health?.
39. Urabe, C.T., Tanaka, G., Oshima, T., Maruyama, A., Misaki, T., Okabe, N. and Aihara, K., 2020. Comparing catch-up vaccination programs based on analysis of 2012–13 rubella outbreak in Kawasaki City, Japan. *PLoS one*, 15(8), p.e0237312.
40. Liang, T., 2020. Handbook of COVID-19 prevention and treatment. The First Affiliated Hospital, Zhejiang University School of Medicine. Compiled According to Clinical Experience, 68.
41. Kayrite, Q.Q., Hailu, A.A., Tola, T.N., Adula, T.D. and Lambyo, S.H., 2020. Compliance with COVID-19 Preventive and Control Measures among Food and Drink Establishments in Bench-Sheko and West-Omo Zones, Ethiopia, 2020. *International Journal of General Medicine*, 13, pp.1147-1155.
42. Rousan LA, Elobeid E, Karrar M, Khader Y. Chest x-ray findings and temporal lung changes in patients with COVID-19 pneumonia. *BMC Pulm Med*. 2020 Sep 15;20(1):245. doi: 10.1186/s12890-020-01286-5. PMID: 32933519; PMCID: PMC7491017.