

Complications and Recommendations in Pregnant Women Infected with Coronavirus: Systematic Review

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Abstract:- Introduction: On March 11, the WHO declared a pandemic that is affecting health worldwide, the same one that occurs by direct contact with infected people, which has evolved rapidly due to the transmission of massive contagions. The cause of this disease is still being sought, since pregnant women are more severely affected due to intrauterine transmission or by breastfeeding. Objective: To examine the scientific evidence on complications and recommendations in pregnant women infected with COVID-19 Methodology: Literature review the search strategy included the databases Pubmed, Google Academic, Web of Science and Scopus. Articles written in Spanish and English were searched, from which we found 289 articles published in the period 2019 and 2020. Results: 17 articles related to the study theme were selected. All studies show that Covid-19 affects pregnant women who are carriers of Covid-19, the status of the study is interesting because it provides us with information to avoid massive infections, with a higher sample size and higher quality. Conclusion: Pregnant women should have ultrasound scans to avoid complications due to the Covid-19 virus.

Keywords:- *Pregnancy, Coronavirus, Women.*

I. INTRODUCTION

Pregnancy and COVID-19 are considered health problems worldwide. In 2012 in Saudi Arabia, there were 13 reports of cases in pregnant women, of which two were asymptomatic, died 23%. Two pregnancies ended in fetal death and two were born prematurely. In another series of cases of 11 pregnant women infected with MERS-CoV, 91% presented adverse outcomes, 55% of the neonates required admission to the intensive care unit and 27% died.

A number of studies have been conducted on amniotic fluid, cord blood, neonatal throat swabs, and samples of breast milk with COVID-19 have been taken to prevent transmission from mother to baby, in which the test was negative; although WHO recommends continuing breastfeeding for both confirmed and probable mothers, provided that measures are maintained to prevent infection by droplet and contact borne microorganisms. In addition, three placentas of infected mothers were tested, which tested negative for the virus, and another series of cases was performed with the same equipment, three of the babies born to mothers with proven symptoms of coronavirus and none of these tests were positive, so the current evidence suggests that the virus is not present in the genital fluid. However, several scientists are doing their best to find a cure for the virus by testing infected patients to acquire preventive strategies and to end the pandemic that is affecting the world, the same one that is the main cause of death in pregnant mothers.

Several studies revealed that COVID-19 affects pregnant women with viral respiratory diseases, because they are more prone to contagion, so they have a high risk of suffering difficulties such as fetal distress, premature rupture of membranes, premature delivery, and later in the newborn there are symptoms of respiratory distress, fever, altered liver function, tachycardia, vomiting and pneumothorax.

The most effective measures to prevent COVID-19 is to wash your hands properly with soap and water, if not available use antibacterial gel this baby has a concentration of at least 60% alcohol to effectively eliminate viruses and bacteria from the transient flora of the hands, it is also recommended to avoid close contact with sick people, if you have respiratory symptoms do not attend your prenatal care or ultrasound within 14 days, for this you should schedule your prenatal care with your doctor to avoid unnecessary exposure.

In Ecuador, each year there are approximately 300,000 pregnant women, so it is feasible to present a lethality rate of 25% with COVID-19 infection, this not being avoided tends to infect more than 10% of the population due to contact with infected people.

In South East China, 12 pregnant women were identified, in which medical complications such as respiratory distress syndrome were observed in 4 patients, secondary bacterial pneumonia in 2 patients, and sepsis in 2 patients. Therefore, 57% of seven women in the first trimester had a spontaneous abortion. Also, from the second to the third trimester 40% had fetal growth restriction and 80% had a premature delivery.

This pandemic has been in effect since February 2020, affecting several countries such as Thailand, Republic of Korea, Japan, United States, Philippines, Vietnam, Italy, Spain, Iran, because it is a potential zoonotic disease has been the cause of losses with a low to moderate mortality rate of 2% to 5% nationally.

Available knowledge regarding the impact of COVID-19 on pregnant women has not demonstrated evidence of mother-to-child transmission before or during delivery. Most of the patients with tested pregnancies presented COVID-19 infection since the third trimester, due to the high obstetric risk they should receive the necessary prenatal care and tests in due time.

The coronavirus (COVID-19) has become an epidemic threat as it develops, so prevention and control of the infection in pregnant women and the possible risk of transmission become a great concern, since more tests are needed to develop effective preventive strategies and clinics, because the incubation period of COVID-19 in pregnancy is between 5 to 6 days after infection, although the average period of transmissibility is 7 days after the onset of symptoms the same that can extend up to 14 days. Pregnant women with suspected or confirmed COVID-19 infection should be treated with supportive therapies, taking into account the physiological adaptations of pregnancy. The main objective of the present study was to examine the scientific evidence on complications and recommendations in pregnant women infected with COVID-19.

On March 11, WHO declared a pandemic that occurs through direct contact with infected persons, indicating global transmission of this disease. This situation is evolving rapidly, so that as of March 17, 2020, more than 189,000 people have been diagnosed with IDOC-19. Three case series were also published this year, for a total of 31 IDOC-19-affected pregnancies, and a report from WHO China provides limited information on 147 pregnancies (1). It has spread rapidly worldwide. As of March 18, 72,532 cases were laboratory confirmed and clinically diagnosed, and 6,242 were suspected in China (2).

As the world faces this pandemic, the search continues for the cause of this disease, of which there are unanswered questions specifically about infection in pregnant women, as

they are more severely affected, by which they may also be attracted and produce intrauterine transmission (3). According to recent research, prenatal clinics should ensure that all pregnant women and their visitors are screened for fever and respiratory symptoms, and that symptomatic women are isolated and wear masks (4).

The WHO, mentions that the sample should be taken within the first 5 days of the beginning of the maximum symptoms until the first 10 days of beginning. Therefore, women over 24 weeks of gestation should pay special attention. Before obtaining evidence, the patient should be hospitalized for evaluation and management for 48 to 72 hours; she will remain under surveillance until the result of the diagnostic tests (5).

Likewise, the control of the fetal well-being will be carried out by means of ultrasound or cardiotocographic recording according to the weeks of pregnancy. Of equal importance, the patient with suspected or confirmed COVID-19 should have access to specialized care, which includes obstetric and perinatal care. With the conditions of biosecurity and isolation.

According to recent research, there are limited data on perinatal outcomes of VOC-19 infection, this was done because pregnant women experience changes in the body and immune system," although it is known that they can be severely affected by some respiratory infections, so it is recommended that they take precautions and hygiene measures to protect against VOC-19 and other respiratory diseases (6).

Morris, Goodyear, Relph (7) note that preliminary data suggest that pregnant women are not as severely affected as the general population; thus, a small study was conducted comparing pregnant women with a matched control group of non-pregnant women of similar age, suggesting that pregnant women with SARS may be at greater risk of severe illness and death.

Among the small number of pregnancies reported so far, no evidence of transmission to the infant has been observed; however, these women were almost all infected in the third trimester and underwent cesarean delivery. The effects of the virus before pregnancy are completely unknown; no infants have been delivered from infected women in the first and second trimesters of pregnancy (8).

Currently, the main epidemiological risk factors for coronavirus 2019 disease are close contact with infected persons within 14 days of the onset of symptoms. Data suggest an incubation period of 5 days.

The intention of this retrospective case series was to document maternal death and describe the maternal characteristics that occur. Eighty-seven fetuses, neonates, and relatives of the nine patients known to have experienced severe maternal cardiopulmonary morbidity or mortality after admission to any of the seven-level maternity hospitals were affected during a 30-day period (9). According to

research by Placais (10), preliminary data suggest that children are mildly affected by VIDOC-19, but the level of risk for a newborn is unknown. Limited data have suggested that SARS-CoV-2 is not transmitted through breast milk, although the evidence is too small.

According to Hercilla, Vargas (11) suggests that data are limited and may change in the future, so prevent contact with ill persons, cover sneezes, wash hands frequently, and stay in isolation. For areas of widespread transmission, community mitigation strategies have been implemented such as cancellation of mass gatherings, closing of schools and thus ensuring that pregnant women and their families are infected. Frequent and routine health care visits have also been established to avoid risks to pregnant women according to the health care system (12).

According to recent research COVID-19 is an illness caused by emerging pathogens, ranging from SARS to 2009 H1N1 flu, including Ebola and Zika virus. Therefore, established recommendations should be followed and health care workers should continue to be strong advocates, ensuring that patient needs are addressed (13). At the moment, there are no signs or symptoms of mother-to-child transmission due to the infection that occurs from the third trimester, based on negative results of samples of amniotic fluid, umbilical cord blood, vaginal fluid, neonatal throat samples or breast milk (14).

Current evidence suggests that the administration of corticosteroids for fetal lung maturation does not cause harmful effects to the pregnant woman; the decision will be made by consensus with the infection specialist and the neonatologist (15). Termination of labor or cesarean section was performed in pregnant women who are not clinically stable for Covid-19. Preferably, the delivery was performed when the patient had negativized her samples.

According to research by LeClaire (16), the most effective measures are social distancing, the use of masks, hand washing, adequate nutrition, and rapid identification of cases to prevent the spread of the infection. The purpose is not to eliminate the virus but to avoid the number of infections until those infected can be treated by the health system and thus put an end to the virus. So far there is no increase in severe maternal or neonatal outcomes, although this infection has caused some cases of premature rupture of membranes, fetal distress and premature births that were reported to date (17).

II. METHODOLOGY

➤ *Type of research*

A systematic review of the literature was conducted. In carrying out this process, the recommendations of the PRISMA statement were followed.

➤ *Search strategy*

The search occurred in databases such as PubMed, SciELO, Redalyc, SCOPUS, Springer, Taylor and Francis, Web of Science, Proquest, Ebook Central, Fielweb, EBSCO.

For the search we used the keywords related to the desired objectives, according to the terms Mesh and DeCs: "Coronavirus Infection in Pregnancy", "Coronavirus Disease 2019 and Pregnancy", "Maternal Death Due to Covid-19 Disease" AND "Public Health and Maternal Fetal and Neonatal Care The intersection between these descriptors, using the Boolean type connections AND and OR In addition, observational reports (cross-sectional and prospective studies on anxiety in health care workers) were also considered.

➤ *Inclusion and Exclusion Criteria*

The selection of scientific evidence included the following: empirical scientific articles and books, doctoral theses, both in Spanish and English and published in the last twenty years. Thesis type studies (undergraduate), monographs and argumentative essays, impossibility to recover the full text of the article and article/s repeated from a previous search were excluded.

➤ *Procedure*

In the first stage, the topic was identified and the research question was formulated in the PICO (Population, Intervention, Control and Waste) acronym format: ¿What are the complications and recommendations in pregnant women infected with COVID-19?

The second stage applied the inclusion and exclusion criteria mentioned above. Then, in the third stage, the primary selection of publications was made by reading the title and the abstract.

In the fourth and fifth stage, the evaluation of the studies was carried out with more criteria (according to the objectives set), and the interpretation of the results obtained, so that it would reach the sixth stage where the formation of the discussion and synthesis of knowledge was given. A systematic review was provided with rigorous and exhaustive scientific information with studies of more and better relevant information, without introducing information or publication bias, in such a way that the contribution to the scientific community.

III. DISCUSSION

The analysis of the 17 articles selected to examine the scientific evidence on complications and recommendations in pregnant women infected with COVID-19 has been carried out.

➤ *How COVID-19 acts in pregnant women*

Covid-19 acts on pregnant women by making them more susceptible to viral respiratory infections. Studies revealed that pregnant women with different respiratory diseases were at high risk of developing obstetric complications and adverse perinatal outcomes compared to nonpregnant women, due to changes in immune responses. We also know that pregnant women may be at risk for serious illness, morbidity, or mortality compared to the general population because they are susceptible to other coronavirus-related infections, such as severe acute

respiratory syndrome coronavirus (SARS-CoV), middle eastern respiratory syndrome coronavirus (MERS-CoV) and other viral respiratory infections, such as H1N1 flu, which affect pregnant women (1, 11).

➤ *Complications in a pregnant woman who is a COVID-19 carrier during childbirth*

Some of the complications presented by pregnant women with symptoms of COVID-19 are (4, 7, 11, 14): Pictures of fetal distress, premature rupture of membranes, premature delivery, and later the newborn presents symptoms of respiratory distress, fever, altered liver function, tachycardia, vomiting, and pneumothorax; They may suffer miscarriage, preterm delivery, preeclampsia, and cesarean delivery due to maternal infection with COVID-19; Women who have given birth, being positive for COVID-19, are unsure whether to breastfeed their babies, as they could be transmitted by goat, although the WHO requires pregnant women to breastfeed normally; The use of steroids should be avoided; The manner of delivery is an important decision, which must be evaluated by a doctor, as he will be the one to make the decision to perform the cesarean section if the fetal condition so indicates.

➤ *Recommendations for pregnant women who are carriers of COVID-19*

According to the WHO, the care of pregnant women should be a priority in order to avoid contagion, so it is especially important because of the social impact on health, since it is a zoonotic disease; to this end, certain recommendations were established (5, 11, 12, 13, 15): Frequent hand washing with soap and water; use of alcohol-based hand sanitizer when entering or leaving different work or daily activities, as soon as you are able to wash your hands; when coughing or sneezing cover your nose and mouth with your elbow; Avoid touching your eyes, nose and mouth as hands facilitate transmission; Use tissues to remove respiratory secretions and throw them away after use; Avoid crowds and public transportation; Limit social relationships; Limit travel; Limit hospital visits in case of emergency; For women who are breastfeeding, they should wash their hands before touching the baby, as well as wash the breast pump or bottles before and after use; Use a mask for breastfeeding; Maintain a physical distance of at least 1.5 meters from others outside the home; Avoid crowded places completely; Stay calm and stay home; Ventilate the house; Do not share cutlery, glasses or towels; and, if you have a fever, cough or difficulty breathing, seek medical assistance immediately or call 171 and follow the instructions of the Ministry of Public Health.

IV. CONCLUSIONS

In conclusion, a bibliographic research work was carried out about Covid-19, we looked for information in some articles and magazines recognizing that Covid-19 is a virus that appeared in Wuhan China in December last year, affecting the whole humanity, causing a high mortality rate.

According to studies carried out by specialists, there is a high percentage of pregnant women who are carriers of

Covid-19. This caused alarm to health professionals, so they carried out prenatal examinations of amniotic fluid, umbilical cord blood, neonatal throat smears; they also ran samples of breast milk to verify if the baby could be a carrier of the virus. During the gestation period, the mother must perform ultrasound scans to check the baby's evolution during the weeks of pregnancy. The function of this test is to observe that the baby is growing and forming properly and does not present complications such as unnecessary cesarean sections, spontaneous abortion, premature delivery, rupture of membranes and retarded fetal growth due to the Covid-19 virus; likewise, the mother will have priority attention in obstetric and perinatal care with the conditions of biosafety and isolation.

However, several health professionals are doing their best to find a treatment or cure for the virus, conducting studies by seeking evidence in infected patients in order to acquire preventive strategies and put an end to the pandemic. It would be interesting to carry out empirical studies on anxiety in the face of the health emergency due to the COVID-19 pandemic (18,19,20) related to emotional (21) and educational aspects (22).

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➤ *Conflict of Interest*

There are no personal, professional or other conflicts.

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