International Journal of Science Academic Research
Vol. 02, Issue 10, pp.3105-3107, October, 2021
Available online at http://www.scienceijsar.com

ISSN: 2582-6425

Research Article

IMPLICATIONS OF COVID 19 IN PRETERM LABOR

[1]Israel David Echavez Cervantes, [2]María Fernanda Suarez Ruiz, [3]Karla Andrea Gutiérrez Martínez, [4]Lizeth Tatiana González Ramírez, [5]Andrés Camilo Angarita Guerrero, [6]Karen Dayana Jaimes Horta, [7]Vanessa Izquierdo Pérez, [8]David Andrés Sánchez Echavarría and [9]Andrea Carolina Fuentes Pacheco

[1]Obstetrician Gynecologist, Universidad de Cartagena, Colombia
[2]General Physician, Universidad Libre de Barranquilla, Colombia
[3]General Physician, Fundación Universitaria San Martín, Colombia
[4]General Physician, Universidad de Santander, Colombia
[5]General Physician, Universidad de Santander, Colombia
[6]General Physician, Universidad de Cartagena, Colombia
[7]General Physician, Universidad del Magdalena, Colombia
[8]Intern Physician, Universidad de Ciencias Aplicadas y Ambientales U. D. C. A
[9]General Physician, Universidad del Sinú, Colombia

Received 26th August 2021; **Accepted** 20th September 2021; **Published online** 30th October 2021

Abstract

Pregnant women are known to experience immunological and physiological changes that can make them more susceptible to viral respiratory infections, including COVID-19 (SARS-CoV-2,). It is important to consider that during pregnancy a state of partial immunosuppression occurs that, associated with physiological and mechanical changes, makes women susceptible to different viral infections, therefore the COVID-19 pandemic can have serious implications in this population. The pregnant woman and her fetus represent a vulnerable population during any outbreak of an infectious disease, which is why it is important to have up-to-date and reliable information for clinical decision-making.

Keywords: covid-19, premature delivery.

INTRODUCTION

As a result of the new reality created by the development of a new pandemic that has set records in mortality and morbidity rates, it is almost an obligation to find and develop prevention and promotion routes that minimize the impact of a respiratory infection as it is. Covid-19 especially in populations such as pregnant and pediatric (Di Mascio *et al.*, 2020). Historically pregnant women have been more severely affected by outbreaks of respiratory infections compared to women of similar non-pregnant age groups. This has been described in the 1918 influenza epidemic, the 1957-1958 Asian influenza epidemic, and more recently, in the 2009 H1N1 and SARS pandemic in 2003 (It should be remembered that SARS-CoV is also a coronavirus, and shares 85% of the genomic sequence with SARS-CoV-2.). In all these epidemics, pregnant women showed a high fatality rate, a higher risk of admission to intensive care units, a higher risk of mechanical ventilation and other infectious complications (Rosen *et al.*, 2021). In pregnant women, covid-19 infection is usually characterized by the sudden appearance of variable symptoms such as: arthralgia, dysgusia, anosmia, chest pain of the oppression type, headache, fever, among other symptoms, which are installed in a variety of 5 to 8 days after contact with another person in the same general conditions or with respiratory fluids or objects or material surfaces that present particles of respiratory aerosols of the infected person and usually last up to 7 days or more. After the appearance of these symptoms (Table 1), the picture may become more intense, making respiratory distress and clinical symptoms of a more critical state appear, as a result of the so-called "cytokine storm" or a systemic inflammatory response that can bring death.

Corresponding Author:** ***Israel David Echavez Cervantes,
Obstetrician Gynecologist, Universidad de Cartagena, Colombia.

Table 1. Clinical symptoms of covid-19 infection

Clinical symptoms of covid 19 infection
Malaise and fatigue
Fatigue
Dyspnoea
Broncho-obstructive syndrome
Chest pain (unspecified)
Confusion
Tachycardia (unspecified)
Intolerancia al ejercicio
Insomnia
Pain all over the body
Cough
Dysosmia
Headache
Fever (unspecified)
Dysgeusia
Joint pain
Chest pain

Due to some changes induced by hormonal production and other physiological changes in pregnancy, the upper respiratory tract of women tends to be edematous, this associated with a restricted lung expansion predisposes the pregnant woman to be susceptible to certain respiratory pathogens (Khoury *et al.*, 2020). Studies of other respiratory diseases that have gained importance in recent years, such as SARS (Severe Acute Respiratory Syndrome), have shown an association with spontaneous abortion, premature delivery and intrauterine growth restriction (IUGR). However, vertical transmission by these other respiratory diseases, such as SARS, has not been demonstrated.2 It should be noted that most of the management recommendations for pregnant patients at the beginning of this pandemic came from publications made in outbreaks of SARS and MERS. Although current evidence is limited, largely because it is a disease of which we are only recently aware, the potential risk of this

disease to the pregnant patient and the fetus cannot be ignored (Gulersen *et al.,* 2020). In the context of a pregnant patient who is already a carrier of a background pro-inflammatory state, it could induce an even more exaggerated reaction, a consideration that we must take into account especially during the I and III trimesters of pregnancy (Baena-Antequera *et al.,* 2020). That is why it was necessary to make a careful warning regarding this coronavirus pandemic, establishing preventive measures such as hand hygiene, covering properly when coughing or sneezing, avoiding contact with people who have flu symptoms, the use of the vaccination against influenza, improve dietary habits, this helps reduce the spread of Sars-Cov-2 and protects the vulnerable population of pregnant women (Wastnedge *et al.,* 2020).

MATERIALS AND METHODS

A bibliographic search was carried out that spanned from 2019 to 2021 in the databases pubmed, Elsevier, scielo, Update, medline, national and international libraries. We use the following descriptors: covid-19, premature delivery. The data obtained oscillate between 7 and 20 records after the use of the different keywords. The search for articles was carried out in Spanish and English, it was limited by year of publication and studies between 2017 and 2021 were used. The main exclusion criteria were articles that had more than 3 years of publication.

RESULTS

The disease and its consequences have been described in all age groups, however, the impact on pregnant women has been partially described and this has drawn attention. To date, a total of 55 cases of pregnant patients with COVID 19 and the results of 46 newborns have been published (Razzaghi *et al.,* 2021). A specific study, which included a total of 18 cases of pregnant women with SARS-CoV-2 pneumonia, reported a mean age of 30 years and these patients presented with one or more of the following symptoms: fever, cough, cholecystitis, odynophagia and diarrhea (Marañón *et al.,* 2020). The time between the onset of symptoms and delivery is described according to the aforementioned study of 1 to 7 days, with a clinical course of pneumonia due to the virus similar to that of non-pregnant patients. Of these 18 reported cases, 10 were hospitalized before 37 weeks of pregnancy and had a premature delivery, this finding suggests there could be some relationship between SARS-CoV-2 pneumonia and the incidence of preterm delivery. However, these women also manifested other obstetric complications such as stillbirth, premature rupture of membranes, irregular contractions or pre-eclampsia, which in some cases warranted obstetric intervention and the consequent early termination of pregnancy (Khoury *et al.,* 2020). A concern during pregnancy for both the clinician and the pregnant woman is vertical transmission and the effects that the pathogen may have on the fetus. The two previously mentioned studies did not demonstrate vertical infection. Both studies ruled out the presence of SARS-CoV-2 in amniotic fluid, umbilical cord blood, breast milk, and throat swab of neonates born to COVID-19 carrier mothers.7 In any case, it is still too early to be certain if the Vertical transmission occurs or not, although it is certainly not impossible (Wastnedge *et al.,* 2020). There are two publications that have taken into account the antibody titer in neonates born to mothers carrying the virus and in both publications it has been possible to demonstrate the presence of IgM (Immunoglobulin M) for SARS-CoV-2 in the serum of neonates (Adhikari *et al.,* 2021). Knowing that IgM does not cross the placenta, the presence of these antibodies could be related to an in utero response to infection and the possibility of vertical transmission is gaining strength, however it must be taken into consideration that this evidence comes from a number small number of cases and took into account only patients with advanced pregnancies (Vigil *et al.,* 2021).

DISCUSSION

So far, specific information regarding the impact of COVID-19 on pregnant women and perinatal outcomes is scarce. The first cases reported in the literature are from February 2020, which includes 9 pregnant women and based on that article, there are several elements that we can rescue to keep in mind in the face of a suspicious clinical picture (Nowakowski *et al.,* 2021). In addition, several questions that cannot be answered given the small number of cases. So far, specific information regarding the impact of COVID-19 on pregnant women and perinatal outcomes is scarce (Kinney *et al.,* 2012). But it has allowed us to create a clinical profile to take into consideration according to the findings in pregnant women positive for Sars-Cov-2 infection. Among these aspects we have: Age: 20 to 40 years (that is, it does not discriminate age in pregnant women), history of chronic disease associated with the respiratory system (can predispose to severe cases of covid-19 infection), pre-eclampsia, pregnant woman who manifests fever and cough, myalgias, chills, co-infection with INFLUENZA VIRUS, pregnant women with laboratory tests that report, LYMPHOPENIA, elevated CRP, Elevated liver enzymes and Image tests: chest CT with multiple bilateral infiltrates (ground glass lesions) (Ahumada *et al.,* 2020). Close monitoring of vital signs and oxygen saturation is essential. It is considered necessary to supplement oxygen with a high-flow nasal cannula and its use will depend on the severity of the hypoxemia, the objective is to maintain an oxygen saturation> 95%. It is important to perform arterial blood gases, lactate, kidney function tests and cardiac enzymes in patients who require it depending on their clinical situation (Tang *et al.,* 2018). Thrombocytopenia and transaminitis secondary to virus infection have been described, laboratory findings that are especially important for the differential diagnosis in pregnant patients in whom a hypertensive disorder of pregnancy or HELLP syndrome is also suspected. Because the presence of the virus has been identified for long periods of time on some inanimate surfaces (Tang *et al.,* 2018). In general, it is recommended to perform an ultrasound to evaluate fetal growth 14 days after the resolution of the acute picture, to date there is no clear evidence that the virus is associated with premature delivery or intrauterine growth restriction, however two thirds of the Pregnancies with SARS are affected with growth alterations and even a case of placental abruption was described in a case with MERS, 11 so ultrasound follow-up after the infectious period seems to be reasonable (Vielma *et al.,* 2020). If the clinical situation warrants it and for obstetric reasons it is necessary to perform an ultrasound in a suspected or diagnosed patient with COVID-19, it is important to disinfect the equipment as established by international guidelines.

Conclusion

Although there is no universality when considering that Sars-Cov-2 infection is a factor that predisposes the pregnant

woman to premature birth, the evidence to date provides us with information that makes us take into account covid-19 as an added risk factor for pregnant women during their second and third trimesters of pregnancy. Continuing to investigate these cases can provide us with greater clarity about the conditions of delivery and what complications or new challenges covid-19 infection may pose during pregnancy.

REFERENCES

Adhikari EH, Spong CY. Vacunación COVID-19 en mujeres embarazadas y lactantes. *JAMA*. 2021; 325 (11): 1039–1040. doi: 10.1001 / jama.2021.1658

Ahumada JS, Barrera AM, Canosa D, Cárdenas L, Uriel M, Ibáñez EA, Romero XC. Factores de riesgo de parto pretérmino en Bogotá D.C., Colombia. Rev. Fac. Med. [Internet]. 2020Oct.1 [cited 2021Sep.2];68(4):556-63. Available from: https://revistas.unal.edu.co/index.php/revfacmed/article/view/79702

Baena-Antequera F, Jurado-García E, Fernández-Carrasco FJ, Rodríguez-Díaz L, Gómez-Salgado J, Vázquez-Lara JM. Atención del embarazo durante la epidemia de COVID-19, ¿un impulso para el cambio? [Pregnancy care during COVID-19 epidemic, a drive for change?]. Rev Esp Salud Publica. 2020;94:e202011157. Published 2020 Nov 5.

Di Mascio D, Khalil A, Saccone G, Rizzo G, Buca D, Liberati M, et al. Outcome of coronavirus spectrum infections (SARS, MERS, COVID-19) during pregnancy: a systematic review and meta-analysis. *American Journal of Obstetrics & Gynecology*, MFM. mayo de 2020;2(2):100107

Gulersen M, Blitz MJ, Rochelson B, Nimaroff M, Shan W, Bornstein E. Clinical Implications of SARS-CoV-2 Infection in the Viable Preterm Period. *Am J Perinatol. septiembre de*, 2020;37(11):1077-83.

Khoury R, Bernstein PS, Debolt C, Stone J, Sutton DM, Simpson LL, et al. Characteristics and Outcomes of 241 Births to Women With Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Infection at Five New York City Medical Centers. *Obstetrics & Gynecology*, agosto de 2020;136(2):273-82.

Khoury R, Bernstein PS, Debolt C, Stone J, Sutton DM, Simpson LL, et al. Characteristics and Outcomes of 241 Births to Women With Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Infection at Five New York City Medical Centers. *Obstetrics & Gynecology*, agosto de 2020;136(2):273-82.

Kinney MV, Howson CD, McDougall L, Lawn JE. Nacidos demasiado pronto. Resumen ejecutivo. Informe de Acción Global sobre Nacimientos Prematuros. OMS; 2012 [cited 2020 Aug 11]. Available from: https://bit.ly/3kDu6Yz.

Marañón T, Mastrapa K, Poulut T, Vaillant L. COVID-19 y embarazo: Una aproximación en tiempos de pandemia. MEDISAN 2020; 24(4):707

Nowakowski F, Krajewska K, Klimek K, Wierzba W, Jakimiuk AJ. COVID-19 during pregnancy one year on - what lessons did we learn? *Ginekol Pol.*, 2021;92(5):383-386. doi:10.5603/GP. a2021.0095

Razzaghi H, Meghani M, Pingali C, et al. Cobertura de vacunación COVID-19 entre mujeres embarazadas durante el embarazo: ocho organizaciones integradas de atención médica, Estados Unidos, del 14 de diciembre de 2020 al 8 de mayo de 2021. MMWR Morb Mortal Wkly Rep . 2021; 70 (24): 895-899. Publicado el 18 de junio de 2021. Doi: 10.15585 / mmwr.mm7024e2

Rosen H, Bart Y, Zlatkin R, Ben-Sira L, Ben Bashat D, Amit S, et al. Fetal and Perinatal Outcome Following First and Second Trimester COVID-19 Infection: Evidence from a Prospective Cohort Study. *JCM*. 16 de mayo de 2021;10(10):2152.

Tang, P., Wang, J. & Song, Y. Characteristics and pregnancy outcomes of patients with severe pneumonia complicating pregnancy: a retrospective study of 12 cases and a literature review. BMC Pregnancy Childbirth 18, 434 (2018). https://doi.org/10.1186/s12884-018-2070-0

Vielma O. Sebastián, López A. Marcia, Bustos V. Juan Carlos, Assar Rodrigo, Valdés P. Fernanda. Parto prematuro en pacientes COVID-19 en Hospital San Juan de Dios. Rev. chil. obstet. ginecol. [Internet]. 2020 Sep [citado 2021 Sep 02]; 85(Suppl 1): S59-S66. Disponible en: http://www.scielo.cl/scielo.php?script=sci_arttext&pid=S0717-75262020000700009&lng=es. http://dx.doi.org/10.4067/S0717-75262020000700009.

Vigil De Gracia P, Caballero LC, Ng Chinkee J, Luo C, Sánchez J, Quintero A, et al. COVID-19 y embarazo. Revisión y actualización. Rev peru ginecol obstet [Internet]. 11 de junio de 2020 [citado 2 de septiembre de 2021];66(2). Disponible en: http://localhost:82/index.php/RPGO/article/view/2248

Wastnedge EAN, Reynolds RM, van Boeckel SR, et al. Embarazo y COVID-19. Physiol Rev . 2021; 101 (1): 303-318. doi: 10.1152 / physrev.00024.2020

Wastnedge EAN, Reynolds RM, Van Boeckel SR, et al. Embarazo y COVID-19. Physiol Rey. 2021; 101 (1): 303-318. Doi: 10.1152 / physrev.00021.2020

****