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Fetal repercussions and possible complications of COVID-19 during pregnancy

Repercusiones fetales y posibles complicaciones de COVID-19 durante el embarazo

Repercussões fetais e possíveis complicações da COVID-19 durante a gestação

ABSTRACT

The aim was to identify the repercussions and possible complications of COVID-19 during pregnancy. This is an integrative literature review carried out in the LILACS, World Health Organization (WHO), Ministry of Health and FEBRASGO databases. At the end, 11 studies were selected and analyzed qualitatively according to the theme addressed and its results. It should be noted that because it is a highly contagious pathology, care for this mother and fetus should be more cautious, to avoid complications, which, as a pregnant woman, are more susceptible.

DESCRIPTORS: Coronavirus; Gestation; Fetal Research; Prenatal

RESUMEN

El objetivo fue identificar las repercusiones y posibles complicaciones de COVID-19 durante el embarazo. Esta es una revisión integral de la literatura realizada en las bases de datos de LILACS, la Organización Mundial de la Salud (OMS), el Ministerio de Salud y FEBRASGO. Al final, se seleccionaron 11 estudios y se analizaron cualitativamente de acuerdo con el tema abordado y sus resultados. Cabe señalar que debido a que es una patología altamente contagiosa, el cuidado de esta madre y el feto debe ser más cauteloso, para evitar complicaciones que, como mujer embarazada, son más susceptibles.

DESCRIPTORES: Coronavirus; Gestación; Investigación fetal; Prenatal

RESUMO

Objetivou-se identificar as repercussões e possíveis complicações da COVID-19 durante a gestação. Trata-se de uma revisão integrativa da literatura realizadas nas bases de dados LILACS, Organização Mundial da Saúde (OMS), Ministério da Saúde e FEBRASGO. Ao final, foram selecionados 11 estudos que foram analisados de forma qualitativa de acordo com a temática abordada e seus resultados. Nota-se que por ser uma patologia altamente contagiosa, os cuidados com essa mãe e esse feto devem ser mais cautelosos, para evitar complicações, que por se tratar de uma gestante, estão mais suscetíveis.

DESCRIPTORES: Coronavírus; Gestação; Pesquisa Fetal; Pré-Natal.

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Nathalia Cristina Machado Prado Ramiro

Academic of the Nursing Undergraduation Course at Centro Universitário São Camilo. SP / Brazil. <https://orcid.org/0000-0002-6949-6134>

Mariana de Souza Pereira

Academic of the Nursing Undergraduation Course at Centro Universitário São Camilo. SP / Brazil. <https://orcid.org/0000-0002-8384-8538>

Rafaela Silva de Souza

Academic of the Nursing Undergraduation Course at Centro Universitário São Camilo. SP / Brazil. <https://orcid.org/0000-0001-8776-9506>

Luciane Andrea Aver

Nurse. Master's in Health Sciences. Specialist in Obstetric Nursing, Occupational Nursing and Hospital Administration. Professor at Centro Universitário São Camilo. SP / Brazil. <https://orcid.org/0000-0002-2432-7628>

INTRODUCTION

In December 2019, the first cases of patients with severe respiratory symptoms who were affected by the new virus called Novo Coronavirus, pathology COVID-19, were registered⁽¹⁾. Since then, the virus has spread rapidly throughout the world, and on March 11, 2020, the World Health Organization (WHO) declared a pandemic situation.

The symptoms of COVID-19 are varied and, therefore, the patient who has contracted the new virus may present an asymptomatic condition as he may have more severe symptoms, requiring hospital interventions⁽²⁾.

In Brazil, the first case was registered in the city of São Paulo on February 26, 2020, in a 61-year-old male patient who was in Italy. This patient was treated at home and is now fully cured⁽¹⁾. The numbers of COVID-19 in Brazil are increasing more and more, and 241,080 cases, 16,118 deaths and 94,122 recovered patients are currently confirmed⁽²⁾.

With the rapid spread of the virus, national and international scientific societies and the Ministry of Health of Brazil have published manuals and informational materials, with the aim of guiding the population and health professionals on measures that can reduce contagion and minimize the effects contamination.

Regarding pregnancy, there is no evidence that COVID-19 can have serious consequences for pregnant women, compared to other respiratory infections with viral etiology. Pregnant women with COVID-19 present a clinical picture similar to that of adults who are not pregnant, with the most common symptoms presented being high fever and cough⁽²⁾.

Low-risk pregnancies are just as likely to have the same compli-

Regarding pregnancy, there is no evidence that COVID-19 can have serious consequences for pregnant women, compared to other respiratory infections with viral etiology. Pregnant women with COVID-19 present a clinical picture similar to that of adults who are not pregnant, with the most common symptoms presented being high fever and cough⁽²⁾.

cations as the general population. However, pregnant women who have underlying diseases, such as hypertension, diabetes or chronic respiratory diseases - asthma and chronic obstructive pulmonary disease (COPD) - have a higher rate of complications. Pregnant women with gestational age over 28 weeks should be aware of social isolation and measures to prevent pathology, as they may present a greater risk of prematurity⁽³⁾.

Currently, after tests performed on a sample of placentas, umbilical cord blood, vaginal mucus and amniotic fluid, there is no evidence that COVID-19 can be transmitted from mother to child⁽⁴⁾.

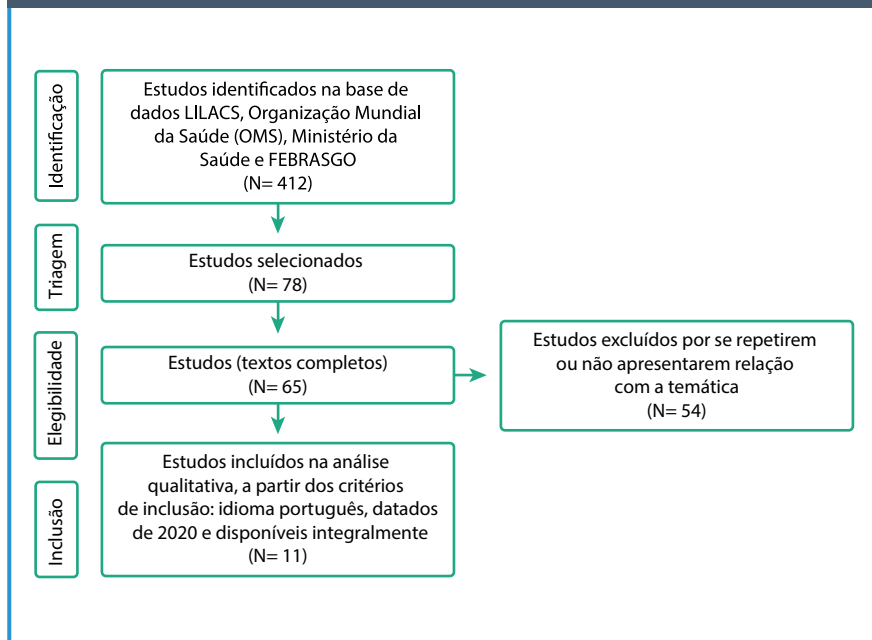
Thus, the objective was to identify the repercussions and possible complications of COVID-19 during pregnancy.

METHODOLOGY

This is an integrative literature review, carried out in the electronic databases LILACS, World Health Organization (WHO), Ministry of Health and FEBRASGO, in order to answer the guiding question: What are the repercussions and possible complications of COVID-19 during pregnancy?

The search and selection were carried out from May 15 to 18, 2020. When using the Health Sciences Descriptors (DeCS): "Coronavirus", "Gestation" and "Fetal Research"; 412 studies were found. Soon after, the eligibility criteria were included. To include the study, it met the following requirements: studies in scientific article formats; published online, free of charge and in full text; published in the year 2020; in the Portuguese language; and that addressed the theme discussed here. As an exclusion criterion, studies published in duplicate on the cited bases.

Figure 1. Flowchart of identification, screening, eligibility and inclusion of references. São Paulo, SP, Brazil, 2020



At the end, 11 studies were selected, as shown in the flowchart below (Figure 1).

RESULTS AND DISCUSSION

Figure 2 shows the synoptic table of the articles selected for the present integrative review with their respective variables: year of publication, authors, title and objective (s).

Figure 3 shows the synoptic table of the selected articles with their respective titles and results.

The new coronavirus infection (SARS-CoV-2), called COVID-19, affects the general population, including pregnant women, but like any other pathology, due to the gestational changes present in the woman's body due to pregnancy, COVID-19 may manifest itself differently in the pregnant woman.

Figure 2. Synoptic table of selected articles containing year of publication, author and objectives. São Paulo, SP, Brazil, 2020

NUMERAÇÃO	ANO DE PUBLICAÇÃO	AUTORES	TÍTULO	OBJETIVO (S)
1º	Março/2020	Osanan, Gabriel Costa	Coronavírus na gravidez: considerações e recomendações sogimig	Auxiliar os profissionais da saúde na condução das gestantes durante o período dessa epidemia.
2º	Abril/2020	ESTRELA, Fernanda Mathews	Gestantes no con-texto da pandemia da Covid-19: reflexões e desafios	Refletir sobre o estar da gestante em tempos de pandemia da Covid-19 e a importância do cuidado profissional, sobretudo de enfermeiras, a fim de superar os inúmeros desafios que permeiam esse desafio.
3º	Março/2020	DASHRAATH, Pra-dip	Doença de coronavírus 2019 (COVID-19) pandemia e gravidez	Resumir as características clínicas de mulheres grávidas com COVID-19 e apresentar uma estrutura pragmática e integrada que aborda as complexidades obstétricas do manejo desta doença na gravidez.
4º	Abril/2020	DUARTE, Geraldo	COVID-19 em obstetrícia. O que é preciso saber?	Evidenciar as informações relacionadas aos aspectos gestacionais e perinatais mediante ao novo coronavírus.
5º	Março /2020	Sociedade brasileira de medicina de família e comunidade	Gravidez e Corona-virus: confira as evidências	Apresentar estratégias de segurança no manejo de gestantes e puérperas no contexto da pandemia de coronavírus.
6º	Abril/2020	Ministério da saúde	Nota técnica 10: Atenção à saúde do recém-nascido no contexto da infecção pelo novo coronavírus (SARS-Cov-2)	Orientar as medidas para enfrentamento da emergência de saúde pública de importância internacional decorrente do coronavírus responsável pelo surto de 2019

7°	Março/2020	Sociedade Brasileira de Pediatria de São Paulo	Coronavírus e recém-nascido: o que se sabe até o momento	Atualizar a revisão sobre coronavírus e recém-nascido
8°	Abril/2020	RONDELLI, Giuliana Paola Hoepfner et al	Atualização às gestantes e recém-nascidos no contexto da infecção COVID-19: uma revisão sistemática	Explorar e sintetizar as evidências disponíveis na literatura científica voltadas para atenção e o manejo das gestantes e recém-nascidos suspeitos ou infectados pelo vírus SARS-CoV-2.
9°	Março/2020	RAMALHO, Carla	COVID-19 na gravidez, o que sabemos?	Sintetizar as informações sobre a ocorrência de complicações no âmbito da pandemia do novo coronavírus na gestação.
10°	Abril/2020	SAIDAH, Mohamed Kas-sen	COVID-19: Manejo em gestantes	Orientar os profissionais da saúde no atendimento de gestantes que apresentarem resultado positivo para o COVID-19.
11°	Abril/2020	Ministério da saúde	Nota técnica 7: Atenção as gestantes no contexto da infecção COVID-19 causado pelo novo coronavírus (SARS-CoV-2)	Orientar as medidas que devem ser adotadas na atenção à saúde das gestantes no contexto da pandemia do novo coronavírus (SARS-CoV-2)

Figura 3. Synoptic table of selected articles containing title and results. São Paulo, SP, Brazil, 2020

NUMERAÇÃO	TÍTULO	RESULTADOS
1°	Coronavírus na gravidez: considerações e recomendações - SOGI-MIG	De acordo com os estudos encontrados, as gestantes infectadas por coronavírus tendem a apresentar um quadro clínico semelhante ao de adultos não grávidos, incluindo sintomas como febre, tosse e linfopenia.
2°	Gestantes no contexto da pandemia da COVID-19: reflexões e desafios	Há sintomas que podem aparecer com menor intensidade nas gestantes como, por exemplo, fadiga, dispnéia, diarreia, congestão nasal e até complicações mais graves como Síndrome Respiratória Aguda Grave (SRAG).
3°	Doença de coronavírus 2019 (COVID-19) pandemia e gravidez	Ainda não há estudos conclusivos correlacionando o risco de malformações congênitas ao vírus.
4°	COVID-19 em obstetrícia. O que é preciso saber?	Em estudos que evidenciam os aspectos obstétricos e perinatais, realizados ao redor do mundo, observou-se elevado índice de partos pré-termos e significativa taxa de prematuridade associada à mortalidade fetal. Além disso, evidenciou-se a ausência de mortalidade materna, na qual a maioria das gestantes apresentou a doença em seu quadro leve.
5°	Gravidez e Coronavírus: confira as evidências	Através de análises de gestantes positivas para Covid-19, pode-se identificar como principal evento adverso para o bebê, o nascimento prematuro.
6°	Nota técnica 10: Atenção à saúde do recém-nascido no contexto da infecção pelo novo coronavírus (SARS-Cov-2)	Atualmente sabe-se que não ocorre transmissão vertical, ou seja, transmissão via placentária para o feto. Além disso, estudo realizados com crianças chinesas mostrou que crianças menores de 1 ano têm maiores chances de desenvolverem complicações mais severas.
7°	Coronavírus e recém-nascido: o que se sabe até o momento	Nos casos em que mães saudáveis não apresentam patologia crônica, os recém-nascidos de mães com Covid-19 apresentam condições de saúde leve a moderada, sendo mínimos os casos críticos, embora ainda possuam imaturidade no sistema imunológico.
8°	Atualização às gestantes e recém-nascidos no contexto da infecção COVID-19: uma revisão sistemática	A história pregressa materna influencia diretamente no prognóstico da gestante, dado que doenças crônicas como Diabetes Mellitus, Hipertensão arterial, asma e doença pulmonar obstrutiva crônica (DPOC) apresentam taxas elevadas de complicações, como pré-eclâmpsia e insuficiência hepática em alguns casos.

During this COVID-19 crisis, the companion is not indicated in the monitoring of pregnancy, with the exception of labor, so that you can minimize the hospital flow, decreasing the risk of exposure to the virus⁽⁵⁾.

When treating a suspected or confirmed case of COVID-19, the patient should be offered a surgical mask, and the same for the patient seems to be sufficient since the viral spread is done by droplets. For the professional team, the use of personal protective equipment (PPE) is indicated, including: glasses, N95 mask, face protector, apron and hat. Since throughout the service, the golden rule must be followed in the containment of the SARS-CoV-2 pandemic, the best strategy remains hand hygiene (water and soap, alcohol gel) and cleaning of surfaces and materials contaminated with alcohol, chlorine, some phenols, iodophores and quaternary ammonium⁽¹⁾.

It is important to note that the mortality rate of pregnant women affected by COVID-19 is not higher than the mortality rate of uninfected pregnant women, who have the same gestational characteristics. Thus, the evidence shows that the probability of complications in pregnant women is the same as that of the general population. However, we must be aware of pregnant women who have Systemic Arterial Hypertension (SAH), Diabetes Mellitus (DM) and chronic pulmonary pathologies (asthma, COPD, smoking, among others), as these have high complication rates⁽⁶⁾.

The symptoms presented by the pregnant woman are quite common to those symptoms presented by the general population, being: fever, myalgia, sore throat and cough. Since the most frequent laboratory alteration was lymphocytopenia⁽⁶⁾.

Like any pregnancy, the pregnant woman needs to perform prenatal care, however the procedures performed during the same will be changed

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according to the level of coronavirus involvement in the pregnant woman, all pregnant women with signs of mild COVID-19 (confirmed or not): the presence of severity (eg, dyspnea, chest pain, tachypnea, dehydration, hemoptysis, among others) should be investigated in the anamnesis and during the physical examination. In the absence of signs of severity and comorbidity that contraindicate outpatient monitoring, the patient should be referred to the home environment for social isolation and supportive care, such as: use of common painkillers, frequent oral hydration and rest. It is essential that the pregnant woman is well informed about the signs of aggravation so that she can seek the reference maternity without delay⁽⁷⁾.

While in more severe cases of COVID-19 (confirmed or not): evaluate pregnant women carefully trying to assess the impact of respiratory disease. The pregnant woman should be referred to the reference maternity to assess the need for complementary tests and hospitalization by a multidisciplinary team. This specific group of pregnant women will possibly need to perform radiological examinations, such as chest X-rays and chest CT to define the clinical context. If deemed necessary, they must be carried out without delay⁽⁸⁾.

Pregnant women contaminated with SARS-CoV-2, in addition to the symptoms, may also present complications that can put maternal health at risk, these complications are usually progressive respiratory failure and severe sepsis. These complications occur due to the predisposition to overlapping bacterial infections due to direct mucosal damage, dysregulation of immune responses and changes in the respiratory microbiome after viral pneumonia. Since postnatal maternal deterioration can still occur, requiring continuous monitoring⁽⁹⁾.

With regard to the fetus, the impact of COVID-19 on the intrauterine environment is not clear, just as it is not known whether vertical transmission occurs during a maternal infection, however, based on pneumonias of other etiologies during pregnancy, there is a risk that COVID-19 determines fetal repercussions⁽⁸⁾.

Possible fetal repercussions for COVID-19 include spontaneous abortion, intrauterine growth restriction (IUGR) and premature birth. Fever, with a median temperature of 38.1 to 39.0 °C in the mother, is the predominant symptom of COVID-19, and it is important to note that cohort studies in patients with other infections did not demonstrate an increased risk of congenital anomalies due to maternal pyrexia. On the first trimester, although inattention disorders in childhood are more common, possibly related to hyper-

thermic lesions in fetal neurons⁽¹⁰⁾.

It is important to remember that pregnant women over 28 weeks should undergo social isolation and measures to prevent the pathology caused by SARS-CoV-2, due to the risk of prematurity and requiring the newborn to receive neonatal intensive care.

The delivery of the pregnant woman who is contaminated with COVID-19 is recommended to be performed vaginally, and cesarean delivery will only be performed in cases of respiratory failure, both deliveries must be performed in an isolated room; it is known to date that vaginal delivery continues to be the most appropriate way to resolve pregnancy for pregnant women with COVID-19. For cases with respiratory failure, the guidelines support the indication for cesarean section. In such cases, it will be necessary to discuss the case with the anesthesiologist and

the neonatologist, especially for pre-term fetuses^(1,11).

CONCLUSION

As it is a new pathology, the amount of available data that addresses its repercussion in pregnancy is scarce, therefore, because it is a critical situation, there is a need to seek alternatives to manage these pregnant women who are suspected or who are already confirmed for COVID-19. The existing studies on COVID-19 are based on evidence and experiences that have been acquired in other countries that were previously affected by this disease, thus, they can guide the best conduct in pregnant and fetus patients. It is noted that because it is a highly contagious pathology, care for this mother and fetus should be more cautious to avoid complications, which, as a pregnant woman, are more susceptible. ■

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