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Infant Condition in Pregnant Mothers with Covid-19

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ABSTRACT

Introduction: *At the end of December 2019, a case of pneumonia with an unknown cause was reported, which became a new outbreak, starting in Wuhan Area, Hubei Province, China. The disease that is endemic to almost all of the world is Coronavirus Disease 2019 (COVID-19). In Indonesia, as of July 11, 2020, as many as 74,018 confirmed COVID-19, this has become a major global health problem. COVID-19 can affect anyone, including pregnant women. However, it is noted from several studies showing the mild severity of infection in pregnant women with COVID-19 still requires special attention related to monitoring the condition of the baby in the womb. Common symptoms include fever, coughing, and chest pain.*
Aim: *The purpose of this review literature is to describe the state of babies born to pregnant women with COVID-19.*
Method: *The method was used a literature review by searching for articles published in various databases, including Medline, Science Direct, Cochrane using appropriate keywords (pregnancy, vertical transmision, perinatal, neonatal, SARS-CoV-2, COVID-19) from March to March June 2020.*
Results: *Results from a review of 6 articles show the condition of babies born to pregnant women with COVID-19 in good health, APGAR scores well, no vertical transmission from mother to fetus, test results of amniotic fluid, umbilical cord blood, neonatal throat swabs and ASI samples were not detected by COVID-19.*
Conclusion: *The conclusion based on the literature review that has been done is the condition of babies born to pregnant women with COVID-19 in a healthy state and found no severe complications*

Keywords: Covid-19, Pregnant Women, Infant

Introduction

The new pneumonia disease declared by WHO as a pandemic has become a serious challenge for all orders around the world, until this article was written in the second week of July, a total of 12.5 million infected people and more than 230 countries in the world (WHO, 2020). In Indonesia itself, starting from the initial appearance in March to July 11, 2020, cases of patients with positive confirmation status infected as many as 74,018 people with a mortality percentage of 5% (Gugas COVID-19, 2020).

Transmission is widespread in both men and women, various ages from 0 years to old age. However, for the age group >60 it is the highest, around >40% (Gugas COVID-19, 2020). The spread of this disease is through droplets from the infected respiratory tract, with clinical symptoms that appear such as fever, cough, shortness of breath, fatigue, headache, diarrhoea, and difficulty tasting taste and smelling (Ren *et al.*, 2020; WHO, 2020; Yu *et al.*, 2020). The elderly with certain disease conditions such as asthma, diabetes, heart disease) are certainly more susceptible to infection (Graham Carlos *et al.*, 2020).

The rapid spread of the virus raises concerns from many experts on the transmission or transmission of the virus from mother to fetus, given the immunological and physiological changes that put pregnant women at high risk for morbidity and mortality due to COVID-19 (Peeri *et al.*, 2020; Qiao, 2020). he concern is based on the incidence of SARS and MERS caused by previous coronaviruses, that they worsen pregnancy conditions (Favre *et al.*, 2020). Although from previous studies related to SARS and MERS, no vertical transmission from mother to fetus was found. However, for SARS-CoV-2 this time the research is still limited and needs further study. Based on the description above, this article was compiled to see how the condition of the baby in pregnant women infected with COVID-19.

Method

This compilation uses a review method for articles regarding the condition of babies in pregnant women infected with SARS-CoV-2 which causes COVID-19. The inclusion criteria used were the condition of the baby and its unity with the placenta while in the womb until the baby was born to a mother who was positively infected with SARS-CoV-2. Exclusion criteria in the preparation of this article are articles that are only abstract, articles that are not indexed by Scopus, and articles that are not full text.

Article search is limited to articles in English and accessed by internet searches from databases, including Medline, Science Direct, and Cochrane with the keywords pregnancy, vertical transmission, perinatal, neonatal, SARS-CoV-2, and COVID-19. Articles that met the inclusion criteria were collected and systematically examined. The literature search was seen from the latest article publications (March-June 2020). The search process that met the requirements according to the inclusion and exclusion criteria was 13 articles.

Results and Discussion

Characteristics of Literature Search

Based on the search database conducted by the researcher, it was found that there were 96 articles that matched the theme, after screening, it was found that 58 articles were inaccessible and 16 articles were too broad in the research scheme, while according to the inclusion and exclusion criteria, there were 6 articles that were not accessible. further review will be carried out. The literature strategy can be seen in the following figure 1.

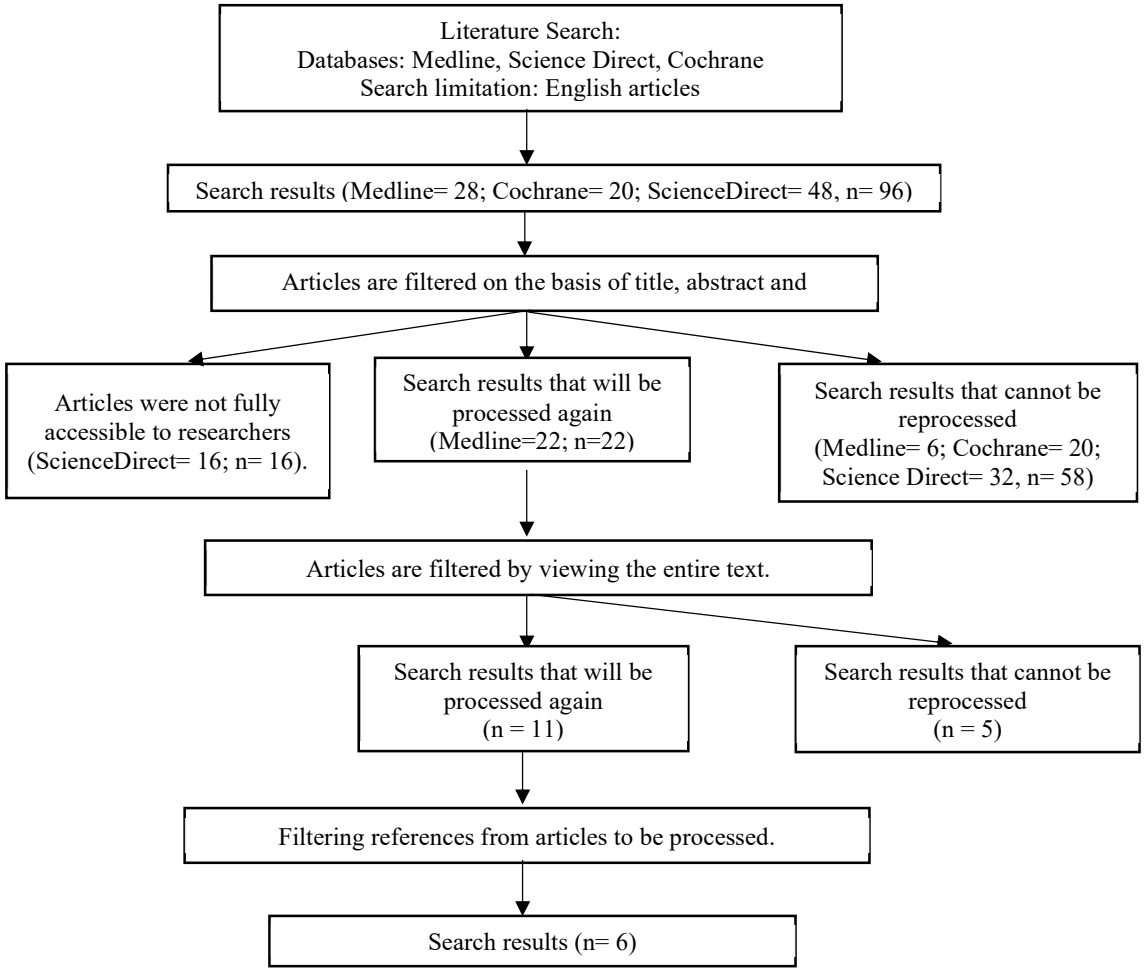

Figure 1. Stages of Literature Review with PRISMA

Analysis of Literature Review Results

Table 1. Literature Data Extraction

No	Author	Journal	Objective	Results
1.	Yu *et al.*, 2020	The Lancet Infectious Disease.	To review the results of clinical symptoms, conditions during pregnancy and the baby at birth.	Babies born: sputum and nasopharyngeal swab results were negative twice in a row (sampling interval 24 hours). Neonatal birth weight and Apgar scores were normal. Four infants were brought home and not tested for SARS-CoV-2; no fever, pathological jaundice, or other symptoms were reported during the follow-up call at 28 days after birth. The other three infants remained for observation in the neonatology department and were tested for SARS-CoV-2. The nucleic acid test for the throat swab of one neonate (patient 1) was positive at 36 hours after birth; nucleic acid tests for the other two were negative.
2.	Zaigham and Andersson, 2020	Acta Obstet Gynecol Scand	To conclude the clinical manifestations of the condition of	Of the 18 articles with 108 pregnant women from December-1 April 2020, 91% gave birth by section to avoid the spread of transmission from spontaneous assistance, there were 3 pregnant women who were confirmed positive for SARS-CoV-2 and were admitted to the ICU which was

			pregnant women and infants with COVID-19 during pregnancy.	aggravated by comorbidities, one of them was BMI > 35, there was one neonatal death during delivery and one case of IUFD. This is confirmed by mothers who have a high risk of pregnancy.
3.	Di Mascio *et al.*, 2020	American Journal of Obstetrics & Gynecology MFM	To provide conclusions on the condition of newborns from mothers who were confirmed positive for SARS-CoV-2	In infected and hospitalized mothers, more than 90% also have pneumonia, preterm labour is the most common. COVID-19 infection is also associated with higher rates of preterm delivery, preeclampsia, section caesaria, and perinatal mortality. There have been no clinically proven cases of vertical transmission. The results of this study are intended to improve prenatal counselling for women with COVID-19 infection that occurs during pregnancy.
4.	Yang *et al.*, 2020	Journal of Clinical Virology	To report the clinical characteristics of infants born to mothers infected with SARS-CoV-2.	4 of 7 premature newborns with a mean birth weight of 2096 ± 660 g. All newborns were born without asphyxia. 2 premature babies moaned after delivery but returned to normal with non-invasive positive airway pressure (nCPAP) ventilation. 3 cases underwent chest X-rays, 1 normal and 2 treated with nCPAP showing mild neonatal respiratory distress syndrome (NRDS). Pharyngeal swab samples in 6 cases, amniotic fluid and cord blood in 4 cases were tested by qRT-PCR, and there was no positive result of SARS-CoV-2 nucleic acid in all cases.
5.	Panahi, Amiri and Pouy, 2020	Archives of Academic Emergency Medicine	Review published literature.	Further review is needed regarding pregnancy in mothers infected with Covid 19 and the babies born to them due to limited clinical data related to research.
6.	Wang *et al.*, 2020	Infectious Disease of Society of America	Case report.	Clinical data on COVID-19 in newborns is still very limited, so that local transmission, short and long-term effects on infants cannot be concluded.

From the series of articles explored, pregnant women who were confirmed positive for COVID-19 were in the range of 29-35 years and 36-42 weeks of gestation with the main complaint being a high fever accompanied by cough and confirmed through a nasopharyngeal swab examination and a chest X-ray chest (Yang *et al.*, 2020; Yu *et al.*, 2020), those infected are a group of high-risk pregnancy conditions such as excessive BMI (Zaigham and Andersson, 2020), asthma, ang pneumonia (Di Mascio *et al.*, 2020; Yu *et al.*, 2020).

Almost all deliveries to mothers infected with Covid-19 are carried out by the section caesaria process. All women ready to give birth were given oxygen therapy and were given antiviral orally (oseltamivir 75 mg every 12 hours), intravenously (ganciclovir 0.25 g every 12 hours) and interferon (40 g by inhalation) (Yu *et al.*, 2020).

For cases of vertical transmission from mother to baby, the specifics of all articles that have been reviewed have not been found, but morbidity and mortality in newborns have been found. Morbidities that occur include cases of premature labour and respiratory problems in infants. As in the study above, there were 7 cases of preterm labour with a birth weight of around 1800 - 2096gr, 5 of them were admitted to the NICU and 2 babies were treated in intensive care because they could still breathe after being ventilated (Yang *et al.*, 2020; Yu *et al.*, 2020; Zhu *et al.*, 2020).

Generally, the examination of Nucleic acid SARS-CoV-2 in newborns can be done after 36 hours after the baby is born. In most of the studies conducted, the results of the SARS-CoV-2 Nucleic acid examination in newborns were negative (Wang *et al.*, 2020; Yang *et al.*, 2020; Yu *et al.*, 2020).

SARS-CoV-2 infection in pregnant women causes morbidity in newborns, such as premature delivery, fetal distress, respiratory distress, thrombocytopenia accompanied by abnormal liver function, and even death. However, the vertical transmission of SARS-CoV-2 cannot be confirmed clinically (Chang, Wu and Chang, 2020; Zhu *et al.*, 2020).

CONCLUSION

Based on the review conducted, concerns about vertical transmission from mother to fetus have not been fully answered, due to limited samples and increasing incidence. If you look back (2002-2003 era) when the SARS-CoV-1 (SARS) outbreak hit, it was reported that cases of maternal mortality increased sharply by around 25% and also a high incidence of abortion (Wong SF, Chow KM, Leung TN, et al., 2004; Alfaraj SH, Al-Tawfiq JA, 2019).

However, this is not fully the basis for the current condition (SARS-CoV-2) because until now research is still limited and clinical findings from local transmission have not been found, as well as the condition of babies born to pregnant women with COVID-19 in good health. and no serious complications were found.

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