



# Management of COVID-19 in pregnant women and neonates

Suhartina Hamzah<sup>a,\*</sup>, Ainun Fatimah<sup>b</sup>, Iqra Aswad<sup>c</sup>, Kurniaty<sup>d</sup>

<sup>a</sup> Faculty of Pharmacy, Hasanuddin University, Makassar, Indonesia

<sup>b</sup> Faculty of Cultural Sciences, Hasanuddin University, Makassar, Indonesia

<sup>c</sup> Faculty of Engineering, Hasanuddin University, Makassar, Indonesia

<sup>d</sup> Graduate School, Hasanuddin University, Makassar, Indonesia

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## ABSTRACT

**Objective:** Coronaviruses are a large family of viruses that cause disease in humans and animals. In humans, it usually causes respiratory infections, from the common cold to serious illnesses such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). The disease is mainly spread between people through respiratory droplets from coughs and sneezes. This virus can last up to three days with plastic and stainless steel SARS CoV-2 can last up to three days, or in aerosols for 3 h.

**Method:** The methodology of this research is indirect observation. Existing data analyzed with a preventive intervention approach and then described with a qualitative descriptive method.

**Result:** Based on research that has been carried out, infection with the COVID-19 virus in pregnant women can not only cause severe symptoms in the mother, but also poses a risk of harm to the baby they are carrying. Therefore, preventive measures need to be taken so that pregnant women are not easily infected with the Corona virus.

**Conclusion:** COVID-19 is a new disease that has become a pandemic. This disease should be watched out for because transmission is relatively fast, has a mortality rate that cannot be ignored, and there is no definitive therapy. There are still many knowledge gaps in this field, so further studies are needed.

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## Introduction

Coronaviruses are a large family of viruses that cause disease in humans and animals. In humans it usually causes respiratory tract infections, from the common cold to serious illnesses such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). The disease is mainly spread between people through respiratory droplets from coughs and sneezes. The virus can survive up to three days with plastic and stainless steel SARS CoV-2 surviving for up to three days, or in aerosols for 3 h.<sup>1</sup>

From 31 December 2019 to 3 January 2020, this case increased rapidly, marked by the reporting of 44 cases. In less than a month, the disease has spread to various other provinces in China, Thailand, Japan, and South Korea.<sup>2</sup>

Initially, the disease was temporarily named as 2019 novel coronavirus (2019-nCoV), then WHO announced a new name on February 11, 2020, namely Coronavirus Disease (COVID-19) caused by the Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) virus. This virus can be transmitted from person to person and has spread widely in China and more than 190 other countries and territories. On 12 March 2020, WHO declared COVID-19 as a pandemic.<sup>3</sup>

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\* Corresponding author.

E-mail addresses: [suhartinahamzah@unhas.ac.id](mailto:suhartinahamzah@unhas.ac.id), [pmc@agri.unhas.ac.id](mailto:pmc@agri.unhas.ac.id) (S. Hamzah).

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The President of the Republic of Indonesia has declared the status of this disease to be the Emergency Response stage on March 17, 2020. The President has also issued Presidential Decree No. 7 of 2020 concerning the Task Force for the Acceleration of Handling Corona, chaired by the Head of the National Disaster Management Agency (BNPB). This Task Force aims to increase national resilience in the health sector; accelerating the handling of COVID-19 through synergy between ministries/agencies and local governments; increase anticipation of the development of the escalation of the spread of COVID-19; improve synergy in operational policy making; and improve preparedness and capacity to prevent, detect and respond to COVID-19.<sup>4</sup>

In December 2019, cases of mysterious pneumonia were first reported in Wuhan, Hubei Province. The source of the transmission of this case is still not known for sure, but the first case was linked to a fish market in Wuhan from 18 December to 29 December 2019, where five patients were treated with Acute Respiratory Distress Syndrome (ARDS).<sup>5</sup>

Most of the patients infected with SARS-CoV-2 show respiratory symptoms such as fever, coughing, sneezing, and shortness of breath. Based on data from 55,924 cases, the most common symptoms were fever, dry cough and fatigue. Other symptoms that can be found are productive cough, shortness of breath, sore throat, headache, myalgia/arthralgia, chills, nausea/vomiting, nasal congestion, diarrhea, abdominal pain, hemoptysis, and conjunctival congestion.<sup>6</sup>

More than 40% of the fever in COVID-19 patients had a peak temperature between 38.1 and 39 °C while 34% had a fever with a temperature of more than 39 °C. The course of the disease began

**Table 1**  
Management of neonates born from women related to COVID-19.

Pregnant women suspect	Pregnant women probable case	(Pregnant women probable and confirmed case COVID-19)
<p>Golden hour period: Perform resuscitation, stabilization and transport according to clinical procedure guidelines, in a special COVID-19 isolation room, the resuscitation team with TIER 3 PPE.</p> <p>Next baby condition: a. Healthy babies, continue observation and care in the transition room, special isolation for COVID-19 b. Neonatal asfickion, continue neonatal care in the neonatal intensive care unit (UPIN) in the special isolation of COVID-19 with a special COVID-19 team according to the clinical procedure guidelines of each hospital with the capacity of neonatal care according to the level of competence.</p> <p>Intra to extra uterine transition period (0–6 h after birth), in a special isolation transition room for COVID-19</p> <p>In the outstanding neonate: •Officers use PPE level-1 •Essential neonatal care is carried out, without premedated breastfeeding initiation.</p> <p>In neonatal emergencies (cyanosis, bleeding, jaundice, biliary vomiting, convulsions): •Officers use PPE level-2 •The neonate was transferred to the special isolation UPIN for COVID-19</p> <p>Perinatal period 6–72 h after birth in a special COVID-19 isolation room Special isolation ward for COVID-19:</p> <ul style="list-style-type: none"> <li>•Officer using PPE level-1</li> <li>•The state of the next neonate: <ul style="list-style-type: none"> <li>a. There is no need to swab the baby.</li> <li>b. Healthy babies should join and can breastfeed directly from the mother, by carrying out proper airway protection procedures, including using a surgical mask, maintaining hand hygiene before and after contact with the baby, and regularly cleaning surface areas where the mother has made contact.</li> <li>c. Under no circumstances can guarantee for breath protection and prevention of contact transmission, babies who are given breast milk should be milked</li> </ul> </li> </ul>	<p>In the outstanding neonate: •Officers use PPE level-2 •Essential neonatal care is carried out, without premedated breastfeeding initiation. Babies are subjected to swabs and blood samples on day 1 and 14 for SARS-CoV-2.</p> <p>In neonatal emergency (cyanosis, bleeding, jaundice, biliary vomiting, convulsions): •Officers use PPE level-2 •The neonate was transferred to the special isolation UPIN for COVID-19</p> <p>The peri-neonatal period is 6 h to 14 days after birth in a special COVID-19 isolation room</p> <p>Neonates was categorized as a low risk close contact, not joint care, treated separately from the mother in a special isolation room for COVID-19, level II: 1. Officers use PPE level-2 2. The state of the next neonate: a. There is no need to swab the baby b. Breast milk is still given to babies in the form of expressed breast milk.</p> <ul style="list-style-type: none"> <li>c. The breast pump is only used by the mother and the pump is cleaned after use</li> <li>d. Cleanliness of equipment for expressing breastmilk must be considered</li> <li>e. The baby is closely monitored and needs to be followed up until he comes home</li> <li>f. Mental health and psychosocial support is provided for mothers and families.</li> </ul>	<p>Neonates are included in the criteria for high-risk close contact, not joining, treated separately from the mother in a special COVID-19 isolation room: 1. Officers use PPE level-2 2. The state of the next neonate: a. Breast milk is still given to babies in the form of expressed breast milk b. The breast pump is only used by the mother and the pump is cleaned after use</p> <ul style="list-style-type: none"> <li>c. Cleanliness of equipment for expressing breastmilk must be considered</li> <li>d. Mental health and psychosocial support is provided for mothers and families</li> <li>e. The baby is closely monitored and needs to be followed up until discharge after 14 days</li> <li>f. If the baby shows symptoms, the baby is treated as a PDP in the special isolation UPIN for COVID-19</li> <li>g. Care for the baby is separated from the mother, until the mother is declared cured by the treating doctor (according to the applicable criteria)</li> </ul>

with an incubation period of about 3–14 days (median 5 days). At this time the leukocytes and lymphocytes are still normal or slightly decreased and the patient is asymptomatic. In the next phase (early symptoms), the virus spreads through the bloodstream, presumably mainly in tissues that express ACE2 such as the lungs, gastrointestinal tract and heart. Symptoms in this phase are generally mild. The second attack occurs four to seven days after the initial symptoms appear. At this time the patient is still feverish and starts to have tightness, the lesions in the lungs worsen, the lymphocytes decrease. The markers of inflammation begin to increase and hypercoagulation begins. If not resolved, the next phase of inflammation becomes increasingly uncontrolled, a cytokine storm occurs which results in ARDS, sepsis, and other complications.<sup>7–9</sup>

Comorbid is a condition of a patient who has two or more chronic illnesses. Comorbid diseases can include diabetes mellitus, hypertension, kidney disorders, autoimmune, coronary heart disease, chronic obstructive pulmonary disease, and tuberculosis.

Cormobid disease suffered by patients can worsen Corona virus infection, so that the number of deaths due to Covid-19 is increasing. During the Covid-19 pandemic, cooperation of all parties is needed to handle it. Guidelines for therapy management are needed that are easy to understand and can be applied by various parties.<sup>10</sup> The management of neonates born can be seen in [Table 1](#).

### PCR swab and rapid test examination

#### PCR swab examination

PCR swab examination uses mucus samples taken from the nose or throat. The two areas were chosen because they were the places where the virus reproduced itself. This examination is considered more accurate, because the corona virus will stick to the inside of the nose or throat when it enters the body. The final results of

this swab PCR examination will actually show the presence of the SARS-COV2 virus in a person's body.

#### *Examination of rapid test*

The rapid test procedure begins by taking a blood sample from the fingertip which is then dropped into the rapid test tool. Next, the liquid to mark the antibody will be dripped in the same place. The result will be a line that appears 10–15 min later (33).

#### **Methodology**

The methodology of this research is indirect observation. Existing data analyzed with a preventive intervention approach and then described with a qualitative descriptive method.

#### **Results**

Based on research that has been carried out, infection with the COVID-19 virus in pregnant women can not only cause severe symptoms in the mother, but also poses a risk of harm to the baby they are carrying. In pregnant women, COVID 19 can also have an impact on various kinds of complaints such as obstetric complaints such as childbirth

Therefore, preventive measures need to be taken so that pregnant women are not easily infected with the Corona virus. If the reverse transcriptase polymerase chain reaction (RT-PCR) result is positive, ideally the patient is treated in a special isolation room at the hospital, but if the treatment room is limited, patients with mild or asymptomatic symptoms can self-isolate. All pregnant women with persistent cough, dyspnea, or chest pain should undergo a chest X-ray with fetal protection.

#### **Conclusion**

COVID-19 is a new disease that has become a pandemic. This disease should be watched out for because transmission is

relatively fast, has a mortality rate that cannot be ignored, and there is no definitive therapy. There are still many knowledge gaps in this field, so further studies are needed.

The management of COVID-19 is based on the classification of the severity of cases, which are divided into several groups, namely without symptoms, mild symptoms, moderate symptoms, severe and critical symptoms.

#### **Conflicts of interest**

The authors declare no conflict of interest.

#### **References**

1. van Doremalen N, Bushmaker T, Morris DH, et al. Aerosol and surface stability of HCoV-19 (SARS-CoV-2) compared to SARS-CoV-1. In: medRxiv Prepr Serv Heal Sci. 2020.
2. Huang C, Wang Y, Li X, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet*. 2020.
3. World Health Organization. Naming the coronavirus disease (COVID-19) and the virus that causes it [Internet]. World Health Organization; 2020. Available at: [https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-\(covid-2019\)-and-the-virus-that-causes-it](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-(covid-2019)-and-the-virus-that-causes-it) [cited 1.03.21].
4. Monardo D. Pedoman tata laksana Covid-19. Gugus Tugas Percepatan Penanganan Covid-19; 2019.
5. Ren LL, Wang Y-M, Wu Z-Q, et al. Identification of a novel coronavirus causing severe pneumonia in human: a descriptive study. *Chin Med J (Engl)*. 2020.
6. Wang Z, Qiang W, Ke H. A handbook of 2019-nCoV pneumonia control and prevention. Hubei Sci Technol Press; 2020.
7. World Health Organization, Mission China Joint. Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19). WHO-China Jt Mission Coronavirus Dis 2019; 2020.
8. Guan W, Ni Z-y, Hu Y, et al. Clinical characteristics of coronavirus disease 2019 in China. *N Engl J Med*. 2020.
9. Chen J, Qi T, Liu L, et al. Clinical progression of patients with COVID-19 in Shanghai, China. *J Infect*. 2020.
10. Kesehatan M. Panduan pencegahan dan pengendalian corona virus disease 2019 (Covid-19) di tempat kerja perkantoran dan industri dalam mendukung keberlangsungan usaha pada situasi pandemi. Menteri Kesehatan Republik Indonesia Peratur Menteri Kesehat Republik Indones; 2015.