

Management strategy for outpatient department of obstetrics to prevent COVID-19 epidemics: China experience

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Introduction

Pneumonia caused by the 2019 novel coronavirus disease (COVID-19) is a highly infectious disease, which has aroused widespread concern all over the world. COVID-19 pneumonia was first reported in Wuhan, Hubei province, China, in December 2019, followed by an outbreak outside of Hubei province and even the whole country. Because of the great efforts of Chinese government and medical staff, the epidemics of coronavirus has been effectively controlled in China now. As a newly emerged virus, there was a lack of awareness among medical staff in the early stage of the epidemics, so that the initial outbreak in Wuhan has not been well recognized. Pregnant women and newborns are susceptible people, so it is very important to ensure the safety of mothers and infants. In order to prevent the second Wuhan from appearing again in another country, this paper refers to the current guidelines for the management of pregnant women during the epidemic period of COVID-19 in China, and summarizes the clinical experience in the actual diagnosis and treatment of our hospital during the outbreak of the coronavirus epidemics.

Because the new coronavirus is particularly infectious, outpatient service is the first window to contact patients with potential virus infection, it is very important to manage the medical staff, pregnant women and their accompanying family members in the outpatient obstetrical department, which is helpful for early detection, early diagnosis, early isolation and early treatment of coronavirus. The effective management of outpatient obstetrical department is one of the key factors to avoid the expansion of the coronavirus epidemics (See figure1).

What is new for outpatient department of obstetrics?

A fever screening office is needed to set up in the outpatient department of obstetrics for screening COVID-19 patient.

- 1) Screening triage: Suspicious cases should be identified in time, and febrile pregnant women should be guided by specially assigned people to the fever clinic office.
- 2) Fever clinic office: Pregnant women with fever, suspicious symptoms or a history of epidemiological exposure are screened here. After examination, pregnant women who can exclude suspected infection can be transferred to the general outpatient clinic. If the pregnant woman is suspected or diagnosed with coronavirus infection, they shall be admitted to hospital for isolation or transferred to a designated hospital as soon as possible in accordance with the regulations. It is strictly forbidden to allow suspected or confirmed pregnant women to be transferred by themselves. Besides this, the accompanying family members of suspected or confirmed pregnant women should also be tested for the coronavirus.
- 3) Independent green access passway for coronavirus patient.

4) Protective measures for medical staff in obstetrical department: It is emphasized to strengthen protective measures for medical staff in obstetrical clinic to avoid infection and cross-infection among medical staff. As a result of the strong infectivity of asymptomatic infection, it is necessary for medical staff in obstetrical clinic to maintain secondary class of protection (medical surgical masks, face shields, disposable hats, protective, gloves).

Clinical Characteristics of COVID-19

Medical staff in obstetrical department should pay attention to pregnant women with recent fever, suspicious symptoms of the respiratory system or digestive system. Generally, fever, fatigue and cough are typical respiratory symptoms, a few patients are accompanied by stuffy nose, runny nose, sore throat, myalgia and other upper respiratory symptoms, nausea, vomiting, diarrhea and other digestive system symptoms are not common.

Asymptomatic infection of COVID-19 included: (1) no clinical symptoms; (2) positive etiological test of COVID-19 in respiratory tract samples; (3) mainly found through agglomeration epidemic investigation and source of infection tracking investigation.

Close contacted is defined as people who has not taken effective protection and has close contact (within 1 meter) with one of the two following situations: 2 days before symptoms of suspected and confirmed cases appear, or 2 days before symptoms of suspected and confirmed cases appear. Those who are in close contact with diagnosed patients should be subject to isolation medical observation¹¹¹. National Health Commission of the People's Republic of China. Diagnosis and treatment of COVID-19 (trial version 6) [EB/OL]. [2020-02-18]. (<http://www.nhc.gov.cn/yzygj/s7653p/202002/8334a8326dd94d329df351d7da8aefc2/files/b218cfeb1bc54639af227f922bf6b81>)

Classification processing to the pregnant women according to the epidemiological history and clinical symptoms

The proportion of COVID-19 patients without fever is higher than that of SARS-CoV (1%) and MERS-CoV (2%) infection¹¹². Zumla A, Hui DS, Perlman S. Middle East respiratory syndrome. *Lancet* 2015;386:995-1007., so if the definition of surveillance cases focuses on detecting fever, patients without fever may be missed²²³. World Health Organization. Clinical management of severe acute respiratory infection when novel coronavirus (2019-nCoV) infection is suspected: interim guidance. January 28, 2020 (<https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf>). Therefore, epidemiological history is particularly important in screening COVID-19 patient. We classify pregnant women into three groups according to the history of epidemiology and clinical symptoms.

1. **First group: Routine obstetrical examination for normal pregnant women.** Pregnant women who have no history of epidemiological exposure and no clinical symptoms will undergo routine obstetrical examination. If there are no pregnancy complications, antenatal examination can be appropriately reduced in frequency; high-risk pregnant women with pregnancy complications should appropriately increase the frequency of obstetrical examinations. Pregnant women can self-monitor blood pressure, blood sugar, weight, fetal movement at home. Free online consultation and guidance was used for pregnant women.
2. **Second group: Pregnant woman with a history of epidemiological exposure but without symptoms such as fever or respiratory symptoms should be isolated at home and under medical observation.** It is recommended that home isolation of the pregnant women and monitoring of maternal health should be maintained for at least 14 days in accordance with the "guidelines for the Prevention and Control of novel coronavirus's pneumonia at Home isolation Medical observation and infection Prevention and Control (trial)"³³⁴. National Health Commission of the People's Republic of China. Guidelines for the Prevention and Control of COVID-19 in Home isolation Medical observation (trial) [EB/OL]. [2020-02-18]. (<http://www.nhc.gov.cn/yzygj/s7659/202002/cf80b05048584f8da9b4a54871c44b26.shtml>) In addition to self-monitoring of body temperature, fever and other symptoms, pregnant women can also self-monitor their blood pressure, blood sugar, weight, fetal movement at home and have free online consultation from doctor. For pregnant women approaching the due date, relevant laboratory

examination, chest CT test and nucleic acid test can be carried at outpatient obstetrical department.

3. **Third group: Pregnant women with a history of epidemiological contact and with fever or respiratory symptoms should go to the fever clinic.** They should be considered as suspected cases and isolated in a single room. Medical staff and patients should take protective measures and the multidisciplinary consultation should be conducted simultaneously. Blood routine examination, chest CT examination and the COVID-19 nucleic acid test should be finished in time. CT examination has important reference value for the evaluation of COVID-19 's pregnant woman's condition, so we should fully communicate with pregnant women of the necessity of chest CT examination, sign the informed consent form, and take necessary abdominal protective measures during CT scan. The suspected cases should be reported directly through the network within 2 hours, and they should be transferred to the designated hospital immediately on the premise of ensuring the safety of transportation.

Referrals for febrile, suspected and confirmed COVID-19 pregnant women

1) Referral indication: The clinic does not have the ability to rescue high-risk pregnant women, premature newborns; severe or critical COVID-19 patients. 2) In addition to the necessary equipment, the ambulance for transfer should also be equipped with fetal heart Doppler auscultation or continuous electronic fetal heart monitor, disposable delivery supplies, neonatal resuscitation sac and other basic rescue equipment and drugs that can meet the first aid requirements of pregnant women and newborns.

3) During the period of waiting for transport, the changes and symptoms of body temperature, respiration, heart rate, blood pressure and blood oxygen saturation should be closely monitored for pregnant woman¹¹⁵. Pu Jie, Liu Xinghui. Suggestions for the classification and management of perinatal prevention and control during the epidemic of new coronavirus pneumonia [J/OL]. *Chin J Obstet Gynecol* , 2020,55 (2020-02-25). <http://rs.yiigle.com/yufabiao/1182682.htm>. DOI: 10.3760/cma.j.cn112141-20200221-00123. 6.Ong SWX, Tan YK, Chia PY, et al. Air, Surface Environmental, and Personal Protective Equipment Contamination by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) From a Symptomatic Patient [published online ahead of print, 2020 Mar 4]. *JAMA* . 2020;10.1001/jama.2020.3227. doi:10.1001/jama.2020.3227. 4) When the labor process of pregnant woman is onset before being transferred to a designated hospital, or when the emergency delivery of pregnancy is urgently terminated due to obstetrical indications, the obstetrician should prepare for baby delivery with careful protective measures.

In general, because of the very high contamination of coronavirus⁶, classified management for pregnant women, screening for accompanying family members and careful protection for medical staff at outpatient obstetrical department is very necessary and effective to protect pregnant women and avoid the expansion of the coronavirus epidemics.

Conflict of interest

No Conflict of interest can be declared.

Authors' contributions

The corresponding author Dr. yong shao developed the study concept and design, critically reviewed the data and decided the content of the manuscript. Dr. Qin Tang and all other authors acquired and/or analyzed data, performed statistical analysis and/or provided technical or material support and/or wrote and/or critically reviewed the manuscript. These authors Dr. Di Xu and Dr. Siyu Chen contributed equally to this work. All authors finally decided the content of the manuscript.

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References:

1.National Health Commission of the People’s Republic of China. Diagnosis and treatment of COVID-19 (trial version 6)[EB/OL]. [2020-02-18].

(<http://www.nhc.gov.cn/yzygj/s7653p/202002/8334a8326dd94d329df351d7da8aefc2/files/b218cfcb1bc54639af227f922bf6b81>)

2.Zumla A, Hui DS, Perlman S. Middle East respiratory syndrome. *Lancet* 2015;386:995-1007.

3.World Health Organization. Clinical management of severe acute respiratory infection when novel coronavirus (2019-nCoV) infection is suspected: interim guidance. January 28, 2020 (<https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf>)

4.National Health Commission of the People’s Republic of China. Guidelines for the Prevention and Control of COVID-19 in Home isolation Medical observation (trial) [EB/OL]. [2020-02-18]. (<http://www.nhc.gov.cn/yzygj/s7659/2020>)

5.Pu Jie, Liu Xinghui. Suggestions for the classification and management of perinatal prevention and control during the epidemic of new coronavirus pneumonia [J/OL]. *Chin J Obstet Gynecol*, 2020,55 (2020-02-25). <http://rs.yiigle.com/yufabiao/1182682.htm>. DOI: 10.3760/cma.j.cn112141-20200221-00123.

6.Ong SWX, Tan YK, Chia PY, et al. Air, Surface Environmental, and Personal Protective Equipment Contamination by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) From a Symptomatic Patient [published online ahead of print, 2020 Mar 4]. *JAMA*. 2020;10.1001/jama.2020.3227. doi:10.1001/jama.2020.3227

Figure 1

