



Jian Jiao      ORCID iD: 0000-0003-3751-2870

## **Under the epidemic situation of COVID-19, should special attention to pregnant women be given?**

Jian Jiao\*

Department of Gastroenterology and Hepatology, China-Japan Union Hospital of Jilin University, Xiantai street 126#, Changchun, China (130033)

\*Correspondence Jian Jiao, Department of Gastroenterology and Hepatology, China-Japan Union Hospital of Jilin University, Xiantai street 126#, Changchun, China (130033). Email: jjian@jlu.edu.cn

### **Abstract**

The sudden outbreak and spread of COVID-19 in this spring led to a serious challenge to the global public health system. So far, the number of cases in the mainland of China has exceeded 80,000. In addition to China's neighboring countries like Japan, South Korea, Thailand and India, severe outbreaks have occurred in Italy and many other countries around the world. As dated on 12<sup>th</sup> Mar., WHO statistics showed that the confirmed cases reported outside China rise to more than 30,000. No epidemiological data on the prevalence and proportion of severe cases in pregnant women has been reported till now. This commentary gives some opinions on the issues that may be faced by three groups of pregnant population, i.e. late pregnancy, early and middle pregnancy and pregnant medical

This article has been accepted for publication and undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the Version of Record. Please cite this article as doi: 10.1002/jmv.25771.

This article is protected by copyright. All rights reserved.

staff. Hoping to provide ideas for the development of relevant research and policy making.

## Keywords

COVID-19, pregnancy, novel coronavirus, policy

The sudden outbreak and spread of COVID-19 in this spring led to a serious challenge to the global public health system. So far, the number of cases in the mainland of China has exceeded 80,000, more than 3,000 people died of this disease. The latest data showed that in addition to China's neighboring countries like Japan, South Korea, Thailand and India, severe outbreaks have also occurred in Italy and many other countries around the world. As dated on 12th Mar., WHO declared that the confirmed cases reported outside China rise to more than 30,000. WHO had announced that “this is not a drill, it's a global pandemic”.

The Special Expert Group for Control of the Epidemic of Novel Coronavirus Pneumonia of the Chinese Preventive Medicine Association has recently reported the epidemiological characteristics of these cases<sup>[1]</sup>. The results showed that the cases were concentrated in the age group of 30-79 years old, which accounted for more than 85% of the total number of confirmed cases, and the number of cases above 60 years old accounted for 30-45%. The crude death rate was 2.3% in all cases, 14.8% in the age group over 80 years old, 2.8% in men and 1.7% in women, unfortunately and sadly, more than 3000 Chinese medical staffs have been infected. While no epidemiological data on the prevalence and proportion of severe cases in pregnant women have been reported till now.

### **More data and experience need to be collected in late pregnancy**

The latest research “Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women” in *the Lancet* reported

This article is protected by copyright. All rights reserved.

by Huijun Chen et al. provided an very important information about COVID-19 infection in pregnant women<sup>[2]</sup>. Nasopharyngeal swab samples of neonate and mother were collected, and the amniotic fluid, cord blood, and breast milk samples for the presence of COVID-19 were also tested, the aim is to provide an assessment of the vertical transmission potential of COVID-19 infection.

Although the study analyzed only 9 cases pregnant women with confirmed COVID-19 pneumonia, and the presence of replicable viruses in the blood of pregnant women was not confirmed, under the emergent circumstances and the limitation of detection methods, these findings are helpful for preventive and clinical practice in China and the world. The article concluded that there is no evidence for intrauterine infection caused by vertical transmission in women who develop COVID-19 pneumonia in late pregnancy, and the clinical characteristics of pregnant women are basically the same as that of ordinary adults. While this conclusion may not convincing because of the small number of cases, in addition, gestational age at the time of infection and the mode of delivery may affect the prognosis. All the 9 cases of pregnancy included in this research were in the third trimester of pregnancy, gestational ages on admission were over 36 weeks and C-sections were adopted, the results in fact revealed the necessity and effectiveness about taking reasonable measures in the early stage of COVID-19 infection, even in pregnancy. More data and experience is still needed to be collected for confirming the transmission and clinical characteristics of pregnancy.

### **Standard monitoring and follow-up are needed in early and middle pregnancy**

Although limited studies suggested that COVID-19 infection has no specific effect on late pregnancy, however, the first or second trimester pregnancy deserves more attention. At different stages of pregnancy, the hormone level and immune status of pregnant women are totally different, which is bound to be closely related to

the outcome of infection. In the early pregnancy, the normal immune balance of the mother is challenged by foreign fetal antigens<sup>[3]</sup>, which may appear unstable state. This state will tend to be stable with the gradual adaptation of the mother. With the growth of the fetus, the mother's immune system is constantly adjusting this steadily, so that it can finally reach a good balance in the late pregnancy. Therefore, the maternal immune system in early pregnancy is actually very sensitive, and the fetus is also in an important stage of organ development. External stimulation, especially virus infections (such as rubella virus, cytomegalovirus, herpes simplex virus), may cause serious immune system disorder and internal environment imbalance, which probably lead to disease, abortion for mother or abnormal growth and development for fetus<sup>[4]</sup>. Previous studies have confirmed that the pandemic of viral infection, like H1N1 2009 influenza virus infection<sup>[5]</sup> or SARS 2003<sup>[6]</sup>, was related to the high incidence of maternal and infant complications, such as spontaneous abortion, premature delivery, intrauterine growth restriction (IUGR), tracheal intubation, admission to intensive care unit, renal failure and disseminated intravascular coagulation (DIC). It's time to predict that these consequences may have happened during the outbreak or may not have been discovered long after the outbreak. It is very necessary to investigate COVID-19 infection in the first and second trimester of pregnancy and keep follow-up, these procedures/testing should be start from now and continued till the end of the epidemic for at least one year, or even longer. National Health Commission of China launched a new notice on Feb 8, 2020 about strengthening maternal disease treatment and safe midwifery during the prevention and control of new coronavirus pneumonia<sup>[7]</sup>. However, there is no recommendation for routine detection and monitoring of early and mid-term pregnancy. Given the widespread and the large number of asymptomatic patients with COVID-19 infection, such followups may need to be further strengthened.

## **Pregnant medical staff should be supported by policy**

It's worth noting that women in late pregnancy with "a clumsy figure" are usually valued and well protected, while those in early pregnancy are often neglected because of their "normal figure and flexible movement". Being medical staffs (especially in China), pregnancy may be never the reason for them to be free from work. In the current severe epidemic situation, many "expectant mothers" in my colleagues still stick to work in their positions, some of them even work in fever clinics and isolation wards, they deserve to be taken care of and supported by policies. Routine COVID-19 testing, adequate rest and better follow-up should be reflected in the policy.

### **Summary**

As time goes by, no doubt we will have a better understanding of 2019-nCoV infections, while routine detection and monitoring of COVID-19 in pregnancy should be considered, standard design, clinical trials and implementation of future COVID-19 vaccines for pregnant women also recommended<sup>[8]</sup>. We hope that human beings can exchange the most experience with the least cost.

### **Reference**

- [1] Special Expert Group for Control of the Epidemic of Novel Coronavirus Pneumonia of the Chinese Preventive Medicine Association. An update on the epidemiological characteristics of novel coronavirus pneumonia (COVID-19). *Zhonghua Liu Xing Bing Xue Za Zhi*. 2020 Feb 14;41(2):139-144.
- [2] Huijun Chen, Juanjuan Guo, Chen Wang, Fan Luo, Xuechen Yu, Wei Zhang. Clinical characteristics and intrauterine vertical transmission potential of COVID-

19 infection in nine pregnant women: a retrospective review of medical records. *The Lancet*, Vol. 395, No. 10226, p809–815

[3] Jamieson DJ, Honein MA, Rasmussen SA, et al. H1N1 2009 influenza virus infection during pregnancy in the USA. *Lancet* 2009; 374: 451–58.

[4] Wong SF, Chow KM, Leung TN, et al. Pregnancy and perinatal outcomes of women with severe acute respiratory syndrome. *Am J Obstet Gynecol* 2004; 191: 292–97.

[5] Figueiredo AS, Schumacher A. The T helper type 17/regulatory T cell paradigm in pregnancy. *Immunology*. 2016 May;148(1):13-21.

[6] Al-Haddad BJS, Oler E, Armistead B, Elsayed NA, Weinberger DR, Bernier R, Burd I, Kapur R, Jacobsson B, Wang C, Mysorekar I, Rajagopal L, Adams Waldorf KM. The fetal origins of mental illness. *Am J Obstet Gynecol*. 2019 Dec;221(6):549-562.

[7] National Health Commission of the People's Republic of China. Notice on strengthening maternal disease treatment and safe midwifery during the prevention and control of new coronavirus pneumonia. <http://www.nhc.gov.cn/xcs/zhengcwj/202002/4f80657b346e4d6ba76e2cfc3888c630.shtml> (accessed Feb 8, 2020).

[8] Schwartz DA, Graham AL. Potential Maternal and Infant Outcomes from (Wuhan) Coronavirus 2019-nCoV Infecting Pregnant Women: Lessons from SARS, MERS, and Other Human Coronavirus Infections. *Viruses*. 2020 Feb 10;12(2). pii: E194. doi: 10.3390/v12020194.

I declare no competing interests.