

Evidence of COVID-19 infection risk for pregnant women

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Note: Pregnant women are thought to be susceptible to infectious diseases like COVID-19. There is limited evidence regarding the COVID-19 infection risk for pregnant women. Here we described the following major concerns, quickly reviewed available clinical evidence, and further proposed some recommendation for your reference.

Concern 1: Whether pregnant women are at higher risk of COVID-19 infection.

--Our limited data and publications available in China suggested that pregnancy does not increase the risk of COVID-19 infection.

Evidence:

Based on Chinese national report of COVID-19 infection, the expected infection incidence among pregnant women in Wuhan is not higher than total population.

Till February 18th, 2020,

number of diagnosed pregnant patients in Wuhan: 75

Real portion of pregnant women among all confirmed patients in Hubei

Expected number of pregnant women in Hubei: 59.17 million (residence in

Hubei province in 2018)*11.54‰ (birth rate of Hubei Province)*280/365=523808.5

Portion of pregnant women among all COVID confirmed patients in Hubei:
 $75/523808.5=0.0001432=0.1432‰$

Expected portion of reproductive women among all confirmed patients in Hubei:

Portion of women aged 15-50 in Hubei: 59.17 million (residence in Hubei province in 2018)*59.24% (age portion published in 2010 for Hube)
=35052308

Number of confirmed cases in Hubei: 59989 (all confirmed cases in Hubei)*44.3% (age portion for COVID infection for people aged 20-50)=24803.127

Therefore, Expected portion of reproductive women among all confirmed patients in Hubei= $24803.127/35052308=0.0001432=0.708‰$

Real portion of pregnant women among all confirmed patients is lower than expected portion of reproductive women among all confirmed patients in Hubei

Pregnant women did not undergo a higher risk of COVID-19 infection, moreover, they are of lower incidence compared to their same age counterparts.

Possible reason: Pregnant women are more serious about infection protection and have taken a good isolation.

Concern 2: Whether pregnant women are at higher risk of more severe condition of COVID-19 infection.

--Our limited data and publications available in China suggested that pregnant women did not at higher risk of severe COVID-19 infection.

Evidence :

Based on the 25 infected women available (16 in Zhang et al. Reports and 9 in Chen et al.), one case developed into severe condition.

Portion of severe case among pregnant women: $1/25=4\%$

In published epidemic data: portion of mild=80.9%, severe=13.8%, critical=4.7%, unknown=0.6%

Pregnancy may not be a risk factor for COVID severity.

Severe condition among pregnant women was much lower than total population.

Possible reason: Pregnant women are more serious about infection protection and have taken a good isolation. They probably have accepted more timely diagnosis and treatment.

Concern 3: When to determinate pregnancy for COVID-19 infected women.

--Our limited data and publications available in China suggested pregnancy determination be based on the development of disease and obstetric indication.

Evidence :

Among all reported infected women, babies were delivered by Cesarean and survived except one neonatal death case.

Based on the only one neonatal death case among infected women:

This case was admitted in 35+2GW, complaining of sore throat for 4 days and fever of 102.2 degree for 3 hours. NST was normal. She developed with back pain, headache, dyspepsia, followed by respiratory failure and inflammatory shock after 7 hour admission. Emergency Cesarean was performed and the baby was of Apgar's score 1-1. After anesthesia (18 minutes before delivery), the baby rate was 140 bpm, and baby's heart rate was 20 bpm at 1min after delivery.

Umbilical cord pH: 6.556, PCO₂: 58.7mmHg, BE -33.9mmol/L, Lactate 7.9mmol/L.

Based on the limited publications, the fetus and baby is relatively safe in mild mother case.

Since rapid disease progression is possible in COVID-19 infected women, development of disease and treatment effect should be considered when to determine pregnancy. The safety of mother and baby, and medical setting

should be weighed.

Regarding the neonatal resusc is unpredictable, if there is no available PPE/N95, safety and life should be of the priority. Fetal sample and further investigation could be done to exclude the possible infection. If the baby is infected, timely diagnosis and treatment seemed effective for avoiding severe adverse neonatal outcomes.