

Recommended measures to a new type coronavirus infection in newborn infants

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A new type of coronavirus infection was reported in Wuhan City, Hubei Province, China in December 2019 and now a major epidemic of the infection was noted worldwide. The number of patients reported in Japan has also been increasing. As of February 26, 2020, there have been no reports in Japan yet on newborn infants born from mothers infected with the coronavirus. However, it would be needed to prepare for those infants. Based on current knowledge, we have created a plan to respond to newborn infants under a current condition.

China reports no in utero infection in 9 infants born from mothers with the coronavirus infection¹). However, the other 10 newborn infants born from mothers with the coronavirus pneumonia have shown fetal distress, preterm delivery, respiratory disorder, thrombocytopenia, DIC, etc. including a fetal case, although the causal relationship has not been clarified²). These symptoms are similar to newborn infants born from mothers with MARS³). At the moment, the detailed information on perinatal and neonatal care to cope with the coronavirus infection is limited. Therefore, this recommendation is tentative based on current knowledge and may be revised according to new scientific evidence.

<Management of newborn infants immediately after birth>

It is unclear whether newborn infants could show severe illness when contracted with the coronavirus compare to other age populations. However, it is mandatory recommended to prevent coronavirus transmission to newborn infants with all available measures including isolation of the infants against for droplet and contact transmissions^{4, 5, 6}).

1. If an infant was born from the mother who developed symptoms with the coronavirus infection during labor or who became asymptomatic just before delivery.

- To prevent virus droplets and contact infection from the mother to the newborn infant, they should be temporarily separated from each other. The mother should be isolated in a private room. The newborn infant should be isolated in an incubator or preferably in a negative pressure room. If not available, the infants should be under cohort isolation using partitions with enough space between infants. All healthcare providers must use a face mask and take adequate precautions to prevent droplet and contact transmissions.
- If the mother wishes to share a room with the infant, caregivers can allow it through appropriate and sufficient explanation to the mother and her family.
- Close observation of the infant is mandatory by monitoring the infant's symptoms and vital signs. Once the infant shows symptoms, an attending neonatologist should contact an infectious control team inside a hospital and contact a local public health center officially to consider virologic tests. Symptomatic treatment should be also started (Symptoms, examinations, and treatments for children contracted with the coronavirus are described in reference 7).

2. If an infant was born from the mother who developed symptoms with the coronavirus infection between delivery and hospital discharge and was in close contact with her through kangaroo care, breastfeeding, etc.

- The infant and mother should be isolated in the same single room, preferably a negative pressure room, with precautions to prevent droplet and contact transmissions. Furthermore, it is also preferable to put the infant inside an incubator to prevent direct contact between the infant and the mother.
- If the close contact between the infant and the mother exists for a sufficient period and the possibility of the coronavirus transmission is considered high, it is recommended to transfer the infant to a facility that can provide close observation and intensive care for the infant.

(Symptoms, examinations, and treatments for children contracted with the coronavirus are described in reference 7).

- Where the infant transferred, isolation using incubator or cohorting with 2m distance from other infants should be placed. An isolation inside a negative pressure room is more desirable. Once the infant shows symptoms, an attending neonatologist should contact an infectious control team inside a hospital and contact a local public health center officially to consider virologic tests. Symptomatic treatment should be also started

3. If a preterm infant born was born from the mother who developed symptoms with the coronavirus infection during labor or who became asymptomatic just before delivery.

- The infant should be isolated in a negative pressure room inside NICU as most preterm infants are already admitted to NICU. If a negative pressure room is not available, the infant should be isolated in an incubator with a distance of 2m from other infants. If even an incubator is not available, a cohorting with a distance of 2m from other infants can be applicable.

- Close observation of the infant is mandatory by monitoring the infant's symptoms and vital signs. Once the infant shows symptoms, an attending neonatologist should contact an infectious control team inside a hospital and contact a local public health center officially to consider virologic tests. Symptomatic treatment should be also started.

- In principle, the mother cannot enter the NICU until the risk of infection from the mother has been reduced. Once the entering is permitted, the mother needs sufficient precautions to prevent droplet and contact transmission to other infants and staff in NICU.

The length of isolation or hospitalization should be determined considering risks of infection from family members after discharging home.

4. Breastfeeding

During the active infection of the mother, there is a risk of droplet and contact transmissions of the coronavirus. Therefore, breastfeeding is not recommended. However, the expressed breast milk feeding is encouraged.

The Japan Society of Pediatrics stated that if the mother already alleviated a fever and clinical conditions are stable, the breast milk can be expressed manually after washing her hands carefully⁸⁾. CDC also recommends the expressed milk feeding, even breastfeeding with adequate precautions to prevent droplet and contact transmissions⁵⁾. However, there is currently very little information on viral transmission through breastfeeding. Therefore, accurate information should be provided based on future knowledge.

At this time, it is difficult to determine when the mother can start breastfeeding. However, at least it is acceptable that the risk of infection to the infant is low once the mother's symptoms disappeared.

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