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LEADING ARTICLE

Care of Neonates and Children During Corona Crisis and Importance of Continuation of Essential Services

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Abstract

The corona virus disease (SARS-CoV-2) has rapidly spread across the world and global population including children are facing unprecedented health crisis. The chance of vertical and perinatal transmission of SARS-CoV-2 virus in children is not proven yet. The effect of the virus on neonate and infant appears to be small. On the other hand, pregnant women suffering from corona virus disease may give birth to premature or IUGR babies who will need extra care. Breast feeding is considered as gold standard in almost all situation. Continuation of breast feeding along with other essential services have reduced the risk of transmission of corona virus.

Keywords: *SARS-CoV-2, feeding recommendation, essential services.*

Introduction

The recent pandemic caused by the novel Coronavirus 2019 (COVID-19) has exposed global population to an unprecedented health crisis.[1] The World Health Organization declared the disease as a global pandemic in March 2020.[2] Since then the disease has been causing significant mortality and morbidity all over the world.

COVID-19 has affected predominantly adults or older age group.[3] Pregnant women have the same risk of infection like general population.[4] But due to changes to the immune system pregnant women may be more vulnerable to severe infection.[5] Some evidences suggest that risk of serious illness like pre-eclampsia, fetal distress etc. may be greatest in the later part of pregnancy.[6] The most noted fetal complications were prematurity and intrauterine growth restrictions.[7] These preterm babies may develop respiratory distress syndrome, severe sepsis etc. The care of neonate and infant born to COVID-19 infected or suspected mother has become a concern and sometimes matter of controversy. This review focuses on newborn and children care, feeding and handling of children during COVID-19 situation according to the recommendations of expert committee.

The effect of SARS-CoV-2 virus on children

The effect of SARS-CoV-2 virus on infants and neonates appear to be small.[8] They are also at lower risk of developing COVID-19. Among the confirmed cases of COVID-19 children, most have experienced mild or asymptomatic illness.[9,10] Reasons for the disparity in occurring serious disease between newborn, infant and adults are not fully understood; differences in immune mechanism may be the cause.[11] Decreased angiotensin converting enzyme activity in nasopharyngeal epithelium and less vigorous interleukin-6 responses during SARS-CoV-2 infection may contribute to the less severe clinical profiles.[12] However older children may develop serious disease like Multi-system Inflammatory Syndrome (MIS-C).[13]

Perinatal transmission of SARS-CoV-2 virus

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is an RNA virus which predominantly

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affect the respiratory system.[14] Respiratory viruses rarely result in intrauterine transmission of infection to fetuses. Therefore, intrauterine transmission of SARS-CoV-2 is anticipated to be low.[15] Only few reports suggest the isolation of novel coronavirus from amniotic fluid and placenta.[16]

Breast feeding of neonate and infant

Breast feeding is the cornerstone for nutrition and survival of infant and young child. So, World Health Organization recommends exclusive breast feeding for the first 6 month of life, followed by continuous breast feeding with appropriate complementary foods up to 2 years and beyond.[17] However questions have been raised whether mothers with COVID-19 can transmit the virus to their neonate or infant through breast feeding.

The transmission of COVID-19 through breast milk has not been proven yet. At present, data are not sufficient to conclude transmission of COVID-19 through breast feeding. In a study of 46 COVID-19 positive mothers, the breast milk samples of 43 mothers were negative and only 3 were positive for COVID-19 virus by RT-PCR. The viral particles were not alive and not the same like infective viruses. Transmission of COVID-19 would need replicating the viruses to overcome the defense mechanism in the infants and cause clinical infection.[18]

Recommendations was that, for neonates or infants born to a COVID-19 positive or suspected mother should be based on a full consideration of not only the potential risk of COVID-19 infection of the infant, but also the risk of morbidity and mortality associated with not breast feeding or the inappropriate use of formula milk.

In infants, the risk of COVID-19 infection is low and is typically mild or asymptomatic. Infected mother can breast feed her child because consequences of not breast feeding and separation between mother and children can be significant.[19] Since March 18th, 2020, WHO recommended that women with COVID-19 can breastfeed if they wish to do so, based on the idea that babies would get antibodies and anti-infective factors through breast milk which can protect the newborn from getting infections.[20] Mothers with suspected or confirmed COVID-19 should be encouraged to initiate or continue to breast feed. Mothers should be counseled that the benefits of breast feeding substantially outweigh the potential risk of transmission.[21] Mother can breast feed her child with hygienic precautions.[20]

Breast feeding with hygiene

These include wearing of masks, washing of hands with soap and water or with an alcohol-based hand rub before and after touching the baby. Chest only needs to be washed if just coughing up on it. Breasts are not required to washed before every feeding.[21]

Feeding and handling of neonate

In response to the sudden pandemic, most recommendations suggested that asymptomatic newborn should not be separated from their mothers and should breast fed with hygienic precautions.[22]

Mother and infant should be allowed to remain together while rooming-in including kangaroo mother care. Kangaroo mother care can help the preterm and low birth weight babies to maintain their temperature, establishment of breast feeding, prevention of sepsis and avoid hospital admission.[23,24] Perinatal transmission is unlikely to occur if correct hygienic precautions are undertaken along with effective parental education. In the earlier days of the pandemic, neonate and infant were separated from mother and those created psychological stress to mother, child and other caregivers. Restriction to parent visiting has potentially significant impact on parental attachment and well-being with secondary effect on infants' physical and mental health.[25] Now WHO recommends that mother and newborn should not be separated. The dyad may practice KMC even in cases of suspected or confirmed COVID-19 infection by using personal protective equipment and disinfection of used surfaces.[26]

When maternal general health impedes direct breastfeeding or in case of separation of mother and neonate, mothers should be encouraged and supported to express milk. Milk should be expressed with proper hygiene like appropriate hand washing and wearing masks. A caregiver can help the mother in the procedure. Expressed milk should provide freshly to the child. Expressed breast milk should not be pasteurized because it reduces the biological and immunological value of human milk.[23, 27]

Feeding sick children[28, 29]

When a child becomes sick due to COVID-19 infection with symptoms like cough or difficult breathing or

diarrhea, feeding becomes a problem. They can lose weight and become sicker. They should seek for medical care as well as feeding should be cared of.

1. **Frequent breast feeding:** Breast feeding frequently can help the sick child to fight sickness as it will give energy. It will enable them to prevent weight loss and recover quickly. It will also give them comfort. If the child is unwell or too weak to suckle, expressed breast milk can be given from a clean cup or cup-spoon. When mother is COVID-19 positive, she can express breast milk with proper hand washing and wearing masks.
2. **Continue feeding:** Children need more food and liquids when they are sick. As appetite is usually lost, they are encouraged to take small frequent meals. Food should be easily digestible and not fatty. They should also take oral rehydration salt (ORS) and Zinc supplementations when they suffer from diarrhea.
3. **Extra meal during recovery:** Child should take an additional meal of solid food each day to make up lost weight for 2 weeks after recovery or regaining appetite.
4. **Supplementation:** If the mother is unwell or unable to feed the child supplementation with donor milk can be a choice. If that is not available infant formula can be given. In this case safe preparation of milk should be ensured. Child should be fed from a cup or cup-spoon.

The role of continuation of essential services

Bangladesh has successfully achieved the MDG goals and is approaching to fulfill the SDG targets. All the achievements in child health sector are dependent on continuous availability of health services to mother and children around the globe.[30] Due to the recent pandemic, the utilization of maternal and newborn health services has decreased approximately by 19 percent.[31] Lack of health facilities could cause death of over 28,000 children under the age of 5 years within 6 months.[32] Reduction of routine immunization coverage will put a number of children at risk of mortality and morbidity from preventable diseases like diphtheria, measles, polio, pneumonia, meningitis etc. Disrupted essential services could increase child mortality by 37 percent and maternal mortality by 19 percent over the next year.[33] Comparing to adults, so far the direct effects of COVID19 on child and adolescent appears not significant. But, the indirect effect could be horrifying. Essential health care services should be preserved to prevent avoidable losses of child lives during the COVID-19 pandemic and to protect progress in reducing child mortality achieved over recent years.[34]

Conclusion

The global pandemic caused by SARS-CoV-2 virus is one of the most distressing global health crises of our time. After weighing carefully the risks and benefits of essential care, most international organizations recommend to continue the life saving measures for the survival of preterm and low birth weight babies. Essential care should be continued with hygienic precautions. The message is to ensure that mother, newborn and children will continue to receive all the essential services while remaining as safe as possible.

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