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CASE REPORT

Vertical transmission Covid-19: Case report in Hospital São Vicente de Paulo

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Abstract

COVID-19 is a severe acute respiratory syndrome of the new coronavirus (SARS-CoV-2) that emerged in China in early December 2019. The virus has spread rapidly, causing a global pandemic. The knowledge gained during the pandemic suggests that pregnant women and their fetuses are particularly susceptible to poor outcomes. To date, current knowledge about coronavirus infection (SARS-CoV-2) in neonatal severe acute respiratory syndrome is limited. This paper aims to report a case of a mother-infant binomial positive for COVID-19 at Hospital São Vicente de Paulo, whose protocol for newborn care in the neonatal ICU is the scientific document published by the Brazilian Society of Pediatrics, with recommendations on the respiratory care of newborns with suspected or confirmed COVID-19. The laboratory diagnosis of coronavirus was performed by the PCR test in the neonate, being confirmed on the 10th day of life. It was concluded that its transmission was vertical, with no evidence of horizontal transmission due to strict compliance with safety measures from birth to hospital discharge.

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INTRODUCTION

In late 2019, a new coronavirus, named by the World Health Organization (WHO), as COVID-19/SARS-CoV- 2, was identified in the province of Wuhan, China,[1] which has a clinical spectrum that varies from infections asymptomatic to severe conditions.[2]

COVID-19 manifests with initial symptoms fever (98%), cough (76%) and myalgia or fatigue (44%); less common symptoms were sputum production (28%), headache (8%), hemoptysis (5%) and diarrhea (3%). As symptoms manifested around the 8th day of infection, dyspnea (55%) and lymphopenia (63%). Another relevant finding was the presence of pneumonia (100%) with abnormal findings on chest CT.[3]

Vertical transmission is the passing of an infection or disease from the mother to the newborn. Vertical transmission has already been confirmed for several viruses and can lead to consequences such as miscarriage, fetal growth restriction, prematurity and stillbirth. [4] [5] This contagion can happen in the following ways: during pregnancy (intra uterine); in labor (through contact with cervico -vaginal secretions and maternal blood); through breastfeeding and contact after childbirth.[6]

Knowledge gained from previous human coronavirus outbreaks suggests that pregnant women and their fetuses are particularly susceptible to poor outcomes.[7] Articles have shown that pregnant women with Covid-19 versus those without Covid-19 are more likely to have preterm delivery and may have a increased risk of maternal death and of being admitted to the intensive care unit. And their babies are more likely to be admitted to the neonatal unit.[8]

To date, few confirmed neonatal COVID-19 positive cases have been reported in scientific journals and most were asymptomatic or had mild to moderate symptoms.[9] Some reported neonatal complications included respiratory distress or pneumonia (18%), low birth weight (13%), rash (3%), disseminated intravascular coagulation (3%), asphyxia (2%), and 2 perinatal deaths.[10]

According to Center for Disease Control and Prevention (CDC), the effects of the disease on pregnancy, the severity of symptoms and complications, as well as the possible risk of intrauterine transmission are still scarce information. The SARS-COV-2 genome has been found in umbilical cord blood, in addition to the vaginal mucosa and placenta of pregnant women[11] , and evidence of vertical transmission is increasing.

Therefore, it is important to understand the immediate implications of the disease, but also the implications for the evolution of pregnant women who recover from the disease and their newborns. It is essential, as advocated by other authors[12], to gather all the information about COVID-19 in pregnant women, so that we can increase knowledge about this emerging disease.

CASE REPORT

Pregnant woman, 26 years old, G1P1A0, performed 7 prenatal consultations, without comorbidities. Presenting non-reactive serologies for HIV, syphilis, rubella, and hepatitis B and immune (reactive IgG and non-reactive IgM) for cytomegalovirus and toxoplasmosis. Reported flu-like symptoms on 07/14/2020. Performed the real-time polymerase chain reaction (RT-PCR) test for COVID-19, in nasal swab , on the 7th day of symptoms (07/21/20) with detectable result . The pregnant woman received two doses of celestone. On 07/28/20 there was rupture of membranes, indicating operative delivery on 08/01/2020.

Newborn (NB) 33 weeks + 2 days, cephalic presentation, reduced amniotic fluid (AL), no meconium, ruptured bag for 3 days, born vigorous, with Apgar score 8/9 in the first and fifth minutes, respectively. The birth weight was 2,200 grams, the length was 40 cm and the head circumference was 32 cm.

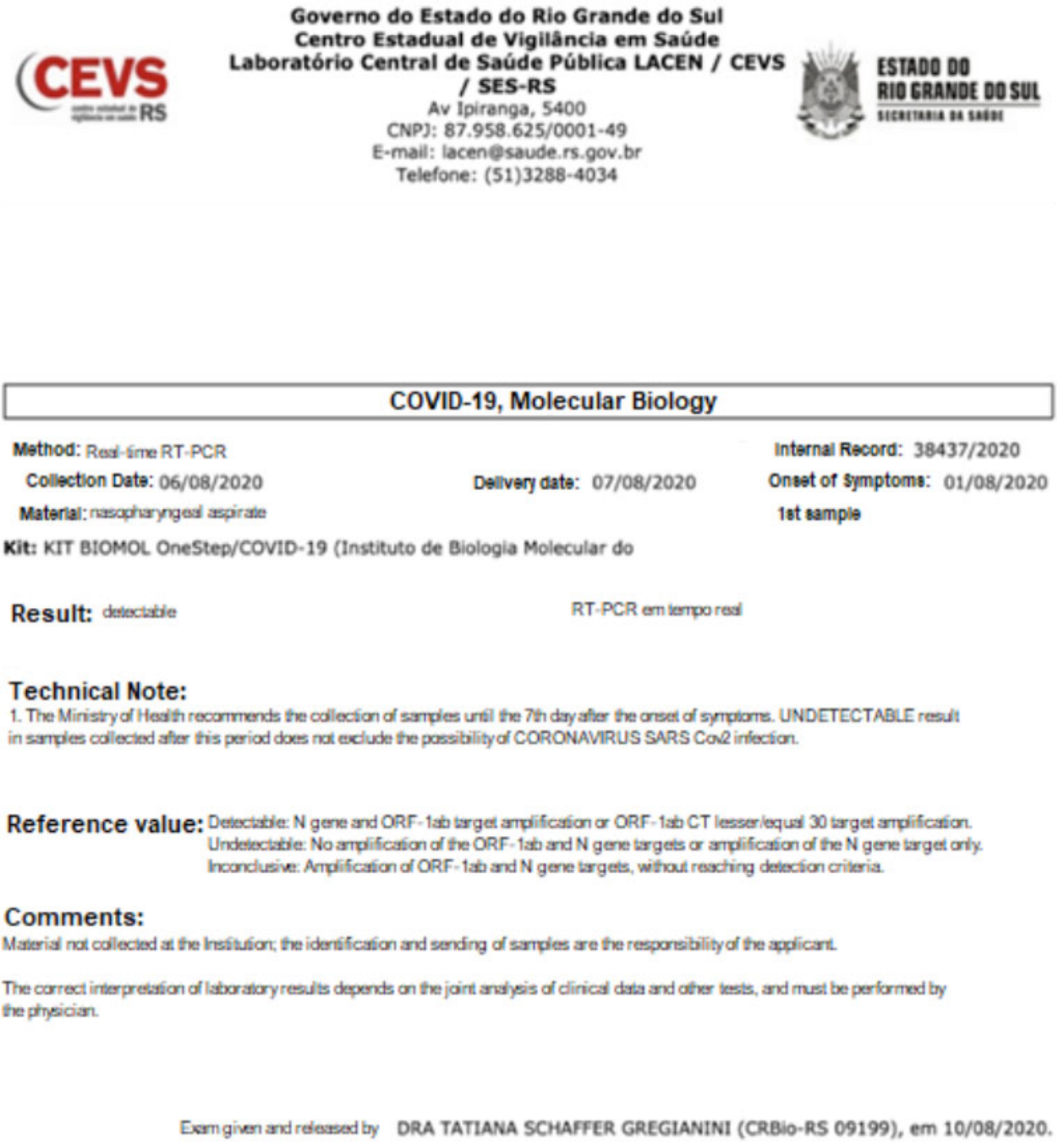
After birth, he was referred to the Neonatal Intensive Care Center (NICU). Ventilatory support was started CPAP 7/30% and ampicillin plus gentamicin, and he was on a Nothing by Oral Diet (NPO) with an open orogastric tube. She remained on CPAP until the third day of life, where it was replaced by free oxygen in an incubator, which remained until the seventh day of life, after being kept in room air. The patient remained under treatment for early neonatal sepsis, without meningitis (cerebrospinal fluid collected with normal results), due to laboratory alterations and a suggestive clinical picture due to vomiting. He also evolved with hyperbilirubinemia (Total bilirubin 12.7 mg/ dL) treated with phototherapy. On the fifth day of life, the real-time polymerase chain reaction (RT-PCR **)** test for COVID-19 was performed, while still under phototherapy, with better diet acceptance: exclusive use of infant formula. On the sixth day of life, an antibiotic regimen was changed to oxacillin and amikacin , due to laboratory worsening. On the sixth day of life, a Transfontanellar Ultrasound was performed with normal results. On the tenth day of life, when phototherapy was suspended, he received a PCR test result for COVID19: detectable (figure 1). Discharge from the neonatal ICU on 08/15/20, after the end of the antibiotic. Hospital discharged on 08/19/20 with 18 days of life, weighing 2410 grams. The patient is currently 1 year and 2 months old (chronological age), healthy so far.

DISCUSSION

The reported case allows us to observe the possibility of vertical transmission of COVID-19, since the mother performed the reverse transcription procedure followed by real-time polymerase chain reaction (RT-PCR) eleven (11) days before the birth. delivery, which was positive for the virus. In addition, the mother was isolated from the newborn as soon as it was born until the day of discharge from the neonatal ICU (08/15/20), which accounts for 30 days from the onset of the mother's symptoms. The PCR test was performed on the NB 05 days after delivery (06/08/20) with a positive result for the disease.

Hospital São Vicente de Paulo instituted the protocol for NB care in the neonatal ICU based on the scientific document published by the Brazilian Society of Pediatrics, on March 21, 2020[13] **,** with recommendations on respiratory care for newborns with suspected or suspected COVID19. confirmed. Therefore, there is no evidence of horizontal transmission due to strict adherence to safety measures from birth to hospital discharge: use of personal protective equipment by the neonatal ICU team, safe sterilization of surgical instruments during cesarean section and immediate isolation between the mother and child. In addition, prematurity and rupreme corroborate the possibility of infection of the newborn by the coronavirus, which may be the reason for such complications.

The precautionary measures were based on documents from the Brazilian Society of Pediatrics, evidencing the possibility of vertical transmission, once the RT-PCR exam of the newborn was collected on the fifth day of life, according to institutional protocol, a method considered gold standard for the diagnosis of COVID19.[14] Some studies have shown that vertical transmission is possible and its classification criteria are clearly proposed. Others show that the potential for intrauterine vertical transmission of COVID-19 in the first and second trimesters is still unknown. In this sense, high-quality studies are essential to clearly evidence the possibility of vertical transmission of COVID-19 and the risks of repercussions of severe infection in pregnant women and their fetuses.[15]



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ESTADO DO RIO GRANDE DO SUL
SECRETARIA DA SAÚDE

COVID-19, Molecular Biology

Method: Real-time RT-PCR
Internal Record: 38437/2020
Collection Date: 06/08/2020
Delivery date: 07/08/2020
Onset of Symptoms: 01/08/2020
Material: nasopharyngeal aspirate
1st sample
Kit: KIT BIOMOL OneStep/COVID-19 (Instituto de Biologia Molecular do

Result: detectable
RT-PCR em tempo real

Technical Note:
1. The Ministry of Health recommends the collection of samples until the 7th day after the onset of symptoms. UNDETECTABLE result in samples collected after this period does not exclude the possibility of CORONAVIRUS SARS Cov2 infection.

Reference value: Detectable: N gene and ORF-1ab target amplification or ORF-1ab CT lesser/equal 30 target amplification.
Undetectable: No amplification of the ORF-1ab and N gene targets or amplification of the N gene target only.
Inconclusive: Amplification of ORF-1ab and N gene targets, without reaching detection criteria.

Comments:
Material not collected at the Institution; the identification and sending of samples are the responsibility of the applicant.

The correct interpretation of laboratory results depends on the joint analysis of clinical data and other tests, and must be performed by the physician.

Exam given and released by DRA TATIANA SCHAFFER GREGIANINI (CRBio-RS 09199), em 10/08/2020.

Figure 1. COVID-19 exam of the newborn Enzo Rafael Beck Faccio
RT-PCR for COVID-19, nasopharyngeal aspirate collected on 06-08-2020

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