Successful Jatene procedure for great arteries transposition correction in newborn with SARS-CoV-2 infection.

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ABSTRACT

Pandemic of COVID-19 represents a challenge for treatment of patients with congenital heart disease. We present a newborn with great vessels transposition and positive SARS-CoV-2 PCR test. The patient was submitted to a successful surgical treatment with corrective Jatene procedure, requiring opened chest wall during 72 h of postoperative period and 43 days of total in-hospital length of stay.

KEYWORDS: COVID-19, SARS-CoV-2, great vessel transposition, Jatene procedure, congenital heart disease.

INTRODUCTION

Coronaviruses are single stranded ribonucleic acid viruses with a diameter of 60–140 nm and a high rate of genetic mutations and recombinations, rendering them capable of escaping from the immune system and causing novel infections (1). In less than six months, the coronavirus disease 2019 (COVID-19) pandemic has swiftly spread from one city in China to over 190 countries worldwide (2-4). Neonatal infections with SARS-CoV-2 have been described although robust data on vertical transmission are lacking. In most instances where neonatal infection has been reported, close contact with infected mother or caregiver is postulated to have occurred (4).

In newborns, the case is regarded as positive for infection if any of the following conditions occurs, (1): positive PCR for SARS-CoV-2 in respiratory tract or blood samples, high homology of viral gene sequences of the samples from the respiratory tract or blood to the COVID-19 sequence.

We present a case of a newborn with great vessel transposition and SARS-CoV-2 infection.

CASE REPORT

We present a new born with great arteries transposition associated to aquired SARS-COV-2 infection.

The patient was referred to our hospital, with a positive SARS-CoV-2 test, with mechanical ventilatory support in order to confirm a complex congenital heart disease.
The diagnosis was established via echocardiographic evaluation which showed normal venous return, concordance atrio-ventricular and ventriculo-arterial discordance. It was concluded: great arteries transposition, patent ductus arteriosus and permeability of foramen oval.

The patient was recovered from a septic shock with no evidence of systemic inflammatory response requires inotropic support and after stabilization in neonatal intensive care unit, at 10 day in-hospital stay, was submitted to an open heart surgery consisted in anatomic correction with Jatene procedure. The aortic cross-clamping time was 119 min, with cardiopulmonary bypass (CPB) of 181 min. It was decided to maintain in postoperative period opened chest wall, and after 72 the chest wall closure was successfully realized with favorable postoperative evolution. After 32 days of postoperative, the patient was discharged from hospital. Actually, two years after surgery, the patient is doing well, only with mild pulmonary stenosis without hemodynamic or clinical repercussion.

DISCUSSION

For infants born to COVID positive mothers should be reasonable to separate him from the mother if will need cardiac surgery to try avoid post-natal infection.

In fact, there is minimal evidence of placental vertical transmission. In this case, the patient has a positive test for SARS-CoV-2 infection and evolved with septic shock in the preoperative period.

It may also be reasonable to do serial testing on the infant, but there is no consensus on the correct timing surgery should be scheduled with advice from a multidisciplinary team of experts including cardiac medical, cardiac surgical, and infectious diseases as indicated. After evaluation of the clinical conditions for a heart team in our hospital, it was decided to realize the surgical procedure in order to avoid progression of heart damage and irreversible heart failure.

However we must remember that, if prudent, surgery should be delayed until the patient’s symptoms have improved and/or testing has been repeated (often after 14 days) and is negative (5).

On the other side, in older patients the inflammatory response due to SARS-CoV-2 infection has been a frequent complication.

In our patient, probably due to the age, it was no presented even with the septic shock o posteriorly associated to the use of CPB during the surgical procedure.

It was concluded that COVID-19 may affect all age patients. However with cautious evaluation and treatment of associated disease as in our case, the patient improves survival, despite severity of viral illness, and during this pandemic period, patients with active COVID-19, at neonatal period we have no treated any other.

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References