

Review Article

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Infection by the Novel Coronavirus (Covid-19) and Pregnancy: 2 Cases Reports at the University Teaching Hospital of Angre/Abidjan

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ABSTRACT

The novel coronavirus (SARS-Cov-2) that appeared in December 2019 in China quickly spread to all countries around the world leading the World Health Organization (WHO) to declare a pandemic on 11 March 2020. This pandemic is particularly serious in that it severely undermines health care systems in all affected countries, including developing and resource-constrained countries, forcing them to adapt quickly. Current data on COVID-19 and pregnancy are limited. The first published Chinese data seem to show that the symptoms in pregnant women are substantially the same as those in the general population. Through the first 2 cases of COVID-19 observed during pregnancy at Angre University Hospital, the authors wanted to share their experience, under the conditions of a low-resources country.

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Introduction

The novel coronavirus (SARS-Cov-2) is a new strain of coronavirus responsible for the pathology called Covid-19. Coronaviruses are RNA viruses. They are widely found in humans, mammals, birds and bats. These viruses can cause respiratory tract, gastrointestinal and nervous systems infections [1–3]. The prevalence of COVID-19 infection in pregnant women was reported to be similar to that of the general population [4]. Moreover, pregnancy induces immunological and physiological changes making pregnant women more vulnerable to infections in general and to viral pneumonia in particular [5]. Currently, data on the impact of COVID-19 in pregnant women are limited. Through the first 2 cases of COVID-19 observed during pregnancy at Angre University Hospital, the authors wanted to share their experience in the conditions of a low-resources country.

Observation 1

This is KAJ, 40 years old, 6th gesture 3rd parous (1 voluntary termination of pregnancy (VTP), 1 spontaneous miscarriage and 3 living children), referred for a trigger on term pregnancy with a favorable score of Bishop. Prenatal follow-up does not reveal any particularity. The 3 previous births took place without incident, the last after an induction. The patient was tested positive for Covid 19 as a contact subject, her spouse being treated for COVID 19 positive approximately 2 weeks ago. On admission, it was

a gestant woman in good general appearance, afebrile and not producing aerosol. After a trigger through prostaglandin, a follow-up labor (wearing a surgical mask) and in isolation, she gives birth to a healthy looking newborn male, P=3000g, T=50 cm, PC=33cm, Apgar 8-9 in 5 minutes, that will be put in isolation. The biological tests were in favor of lymphopenia. After 48 hours of post-partum monitoring under the care protocol responding to national recommendations, the patient's discharge was authorized with the instructions of the National Institute of Public Hygiene (NIPH). Exclusive breastfeeding was suggested with respect to the barrier measures for the newborn and the familiar surroundings. A post-natal visit appointment in 3 months was prescribed. The hygiene department was contacted to disinfect the post-natal room. Following her husband, the patient was declared cured after two negative tests.

Observation 2

She is a 26-year-old patient, G.L. 2nd nulliparous gesture with a history of a voluntary termination of pregnancy. She is a student. She was evacuated for severe pre-eclampsia complicated acute edema of the lung on a twin pregnancy of 34 weeks.

The history of pregnancy shows to a well-followed pregnancy. The patient performed 5 good quality prenatal consultations. Prenatal check-up was normal. Intermittent preventive malaria treatment was done with 3 doses of sulfadoxin-pyrimethamine. No pathology or specific risk factors were identified. As soon as the patient was admitted to the Angre's Teaching Hospital, she

was admitted to the operating room for an emergency caesarean section. From the outset, resuscitation measures were undertaken. This involved the half-seated position, the taking of 2 large-gauge venous pathways for the administration of furosemide, digitalis and oxygen therapy. In front of high blood pressure at 17/12 cmHg, a double injection of 5 g of magnesium sulphate was made intramuscular. Prior to induction, respiratory distress persisted with dyspnea at 42 cycles/min. Caesarean section resulted in the birth of healthy-looking twins; a first female twin weighing 2,300 g with an APGAR of 5-5, and a second male twin weighing 3,000 g with an APGAR of 7-8 in 5 minutes. It was a bi-chorial twin pregnancy, bi-amniotic pregnancy.

In the health context of infection with Novel Coronavirus, Covid 19 was suspected in the patient. A more in-depth examination seeking the notion of contact with a positive COVID contact subject was desired. However it could not be realized due to respiratory distress. When in doubt, a nasopharyngeal sample was taken for Corona Virus SARS Cov 2. This confirmed the infection with Covid 19. The therapeutic management has therefore been readjusted. In addition to the anti-hypertensive treatment, antibiotic therapy based on Azithromycin and low molecular weight heparin were instituted concurrently with 6l/mn oxygen therapy. The biological examinations were without specificity apart from high transaminases. Post-partum management continued in the Intensive Care Unit for Infectious and Tropical Diseases.

The evolution was favourable marked by a gradual improvement of respiratory distress and a normalization of tensional figures. The patient was discharged 10 days after admission. Strict confinement of 14 days at home was recommended with the application of the barrier measures. Permission to breastfeed was given to the patient with a facial mask. Three weeks after admission, the patient was declared cured after 2 nasopharyngeal samples negative SARS-Cov 2. The surgical follow-up was simple. A contraceptive implant with levonorgestrel was placed in this patient and a follow-up appointment at 3 months.

Discussion

In a systematic review of the literature published in early April 2020, covering 18 studies and 114 pregnant women, Yang and al showed that the clinical, biological and radiological characteristics of pregnant women with COVID-19 were similar to those observed in the general population [6]. In a systematic review of 538 cases in pregnant women, Huntley and al found that the most common symptoms were fever (48%) and cough (46%). Other symptoms included dyspnea (16%), myalgia (17%), fatigue (15%) and headache (9%). Laboratory results included lymphopenia (47%) and a modest increase in liver enzymes (17%) [7].

Thus, based on the data currently available, there is no evidence that pregnant women with COVID-19 were more likely to develop severe or fatal pneumonia [8]. In the first observation, it was an asymptomatic pregnant woman whose screening is linked to close contact with her spouse in isolation at home and in the second observation, the sudden onset of dyspnea in epidemic time allowed the detection of Covid 19, as a suspect case. This dyspnea in reality an orthopnea was earlier related to severe preeclampsia. In total, very limited studies in terms of numbers seem to show that pregnant women are at risk of developing a serious form close to that observed in the general population [9].

Data on obstetrical and fetal complications of maternal SARS-Cov-2 infection are also very limited. Comparisons can be made with other febrile or dyspneic forms [10]. And logically, in severe

forms, patients would be more likely to develop during pregnancy complications such as: spontaneous miscarriages, premature rupture of membranes, premature births, delays in intra-uterine and fetal death in utero. During work, it may occur a higher risk of acute fetal pain, caesarean birth and neonatal death. Possible vertical transmission was reported in several cases of peripartum maternal infection during the third trimester, suggesting that congenital infection is possible but rare (0/310 cases in a review by Huntley and al [7]). Neonatal results were consistently good for at-risk neonates (neonatal death 1/313) in the absence of other problems such as premature birth [7]. Information on fetal sequelae of a maternal infection in the first or second trimester is scarce. In sum, based on current data, fetal and neonatal outcomes appear to be good in most cases. It is therefore possible that the complications described reflect poor tolerance to hypoxia or fever [11].

Today, it is known that the transmission of COVID-19 coronavirus is mainly through close contact with an infected person through respiratory droplets or by hand transmission. In view of the current data, the probability of intra-uterine transmission, during the passage in the genital tract or through breast milk of coronavirus appears very low since it is a respiratory virus. In fact, in limited series of births of women infected with COVID-19, the authors looked for viral RNA in amniotic fluid, cord blood, nasopharyngeal swab in the newborn and in breast milk. All samples were negative. Therefore, the authors concluded that there does not appear to be a materno-fetal passage of SARS-Cov-2 [10].

Regarding the teratogenic risk of SARS-Cov-2 infection, there are no reported cases due to the absence of placental viremia to date. The rare cases of neonatal complications reported were not directly related to SARS-Cov-2 infection [10,11]. A barrier to diagnosis is that there are no accepted criteria for definitive proof of a congenital infection. One of the hypotheses that may explain the absence of maternofetal transmission via the placenta was recently proposed by Zheng and al. [12]. They demonstrated that the SARS-Cov-2 receptor, the angiotensin-2 conversion enzyme (ACE2) necessary for its cellular integration has a very weak expression in almost all cell types of the maternofetal interface.

With regard to the delivery, a trigger is strongly advised as in the first observation especially during the confinement period and one would notice an increase in the indications of caesarean section in case of respiratory distress as was the case in the second observation. In addition, given the thromboembolic risks, in the per and postpartum management, it is imperative to administer low molecular weight heparins and restraint stockings. In our context of resource-limited countries, it has been found that a psychosis in health care personnel who are not prepared to deal with this pandemic has resulted in a stigmatization of the first 2 cases observed. This situation necessitated a hospital adaptation in the form of the installation of isolation rooms and the provision of personal protective equipment.

Ultimately, during breastfeeding, the risk of contamination of a child seems to reside mainly in promiscuity with an infected mother not protected by a face mask, also avoid skin-to-skin contact after childbirth. The main risk for infants is receiving airborne infectious droplets from their mother or any other person. In the light of current data, the benefits of breastfeeding seem to outweigh the potential risks of transmission of the virus. Therefore, after the birth, the mother can breastfeed the newborn, while strictly respecting the appropriate hygiene measures. The use of breast pump, is strongly encouraged while observing the same rules of hygiene.

In sub-Saharan Africa, the reorganization of health services and the social measures taken, can be responsible for an increase in maternal mortality: at first, the first delay stems from the fear of the risk of nosocomial infection, the situation of curfew. Then the second delay is due to the lack of ambulance and public transport at curfew time, the police and the firefighters being overwhelmed and finally the third delay related to a lack of personal protective equipment, isolation room and a small staff.

In the late postpartum, follow-up can be done by telemedicine in times of epidemic [13]. The early postnatal visit is possible if the patient is asymptomatic and after J14 of the post partum, the late postnatal visit will be between 8 and 12 weeks and monitoring in the form of alert system in accordance with the National Institute of Public Health and the Infectious and Tropical Diseases department.

Conclusion

Based on the data currently available, the clinical tables of pregnant women with COVID-19 are similar to those of the general population. There is no evidence that pregnant women infected with COVID-19 are more likely to develop severe forms. Maternal results observed at the end of pregnancy as well as fetal and neonatal results appear good in most cases. In the absence of stronger data, active and intensive management could be the best practice.

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