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Coronavirus Disease 2019 (COVID-19) During Pregnancy among African Women: Characteristics of Pregnant Woman at the Start of Pandemic in Ouagadougou, Burkina Faso

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Abstract

Introduction: Little work has been done on coronavirus disease 2019(COVID-19) in pregnant women particularly among African women. Further knowledge is needed to address this gap. During this COVID-19 epidemic, we found and report five (5) confirmed cases of COVID-19 in pregnancy in Burkina Faso. The objective of this study is to describe the clinical characteristics and evolution of COVID-19 among pregnant women that were admitted and treated in hospitals in Ouagadougou.

Methodology: This is a case study carried out on COVID-19 care sites in the city of Ouagadougou. All pregnant women admitted between March 9th and June 30th with a positive reverse transcriptase polymerase reaction (RT-PCR) test for SARS-Cov-2 were included in our study population.

Results: Five cases of COVID-19 in pregnancy were identified and the mean age of the patients was 27.2 years ± 4.9. The mean gestational age was 20 weeks amenorrhea (WA). Clinically, three (3) patients developed fever, two (2) patients had myalgia, dysphonia, one (1) patient cough, anorexia, asthenia, anosmia and ageusia. Three patients were treated with hydroxychloroquine in combination with azithromycin. The materno-fetal prognosis was good with three virological cures. In one case, there was a persistence of virology and in another case the patient refused the follow-up.

Conclusion: The maternofoetal prognosis of women with COVID-19 is good apart from the occurrence of respiratory signs. While there is no reliable evidence to support the possibility of vertical transmission of COVID-19 infection from mother to baby, the infection and inflammation that occurred in response to the viral infection could affect the development of the fetus hence an interest in monitoring the growth of babies.

Keywords: COVID-19 ; Pregnant; Burkina Faso

Abbreviations: COVID-19: Coronavirus Disease; WHO: World Health Organization; SARS: Severe Acute Respiratory Syndrome; SARS-Cov-2: Severe Acute Respiratory Syndrome Coronavirus 2; RT-PCR: Reverse Transcriptase Polymerase Reaction.

Introduction

The new coronavirus disease (COVID-19), which occurred in December 2019 in China, spread rapidly around the world and the World Health Organization (WHO) declared it a pandemic on March 11, 2020 [1,2]. COVID-19 is a global health emergency. Indeed, with more than 180,000 confirmed cases, the WHO report of March 3th, 2020, estimated the global death rate from COVID-19 infection at 3.4% [3,4]. Given its rapid spread and pathogenicity in all age groups including pregnant women, COVID 19 is a major public health challenge [3,5]. Pregnant women are also reported to be susceptible to infection with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) [4,6]. The case fatality rate of coronavirus infections leading to severe acute respiratory syndrome (SARS-CoV) in pregnant women in China can be as high as 18% to 25% [1,7]. The results of studies conducted in China and the United States of America show that the occurrence of SARS-CoV-2 in pregnant women leads to an unfavorable outcome of the pregnancy with premature births, miscarriages, premature rupture of membranes, intrauterine growth retardation and intrauterine fetal death [8,9]. Evidence of vertical transmission of the new coronavirus is insufficiently documented (COVID-19) [7-12].

To our knowledge, no studies have been published on COVID-19 during pregnancy in Sub-Saharan Africa. Our objective is to describe the socio-demographic, clinical characteristics and the course of COVID-19 cases in pregnant African women.

Material and Method

This case study was carried out in Ouagadougou, the capital of Burkina Faso. The country has more than 1036 confirmed cases with 53 deaths as of July 12, 2020 [13]. In total, 05 cases of COVID-19 confirmed in pregnancy were admitted betwen March 9 and June 30, 2020 at the COVID-19 treatment sites in the city of Ouagadougou (the University Hospital of Tengandogo and the Princess Sarah clinic). At the start of the pandemic, the Tengandogo University Hospital Center (CHU-T) was chosen as the only center for hospitalized COVID-19 patients. Later, a private 30-bed clinic called Princess Sarah clinic, located in Ouagadougou, was also assigned to care for COVID-19 patients.

All pregnant women admitted between March 9th and June 30th with a positive reverse transcriptase polymerase reaction (RT-PCR) test for SARS-Cov-2 were included in our study population. The patients were hospitalized and followed until their virological recovery (two negative RT-PCR tests 48 hours apart) and discharged. A medical evaluation was carried out a month after the COVID-19 test for some women and on June 30 for others to find out how they were doing after COVID-19 and especially the progress of their pregnancy. Until the end of the study no woman had given birth. The study was submitted to the ethics committee in the vulnerability and COVID -19 section, which issued a favorable opinion by deliberation n° 2020-7-136.

Description of Cases

First Case

This is a 24-year-old women working as a secretary who consulted for tired, generalized muscle pain progressing in a feverish context. She reports having been in contact with a confirmed case of COVID-19 at the service a week before her signs began. She is pregnant for about 3 months. She has no known specific pathological history and reports having self-medicated with plants of an unspecified nature. The examination revealed good general condition, good state of consciousness, good hemodynamic state, infectious syndrome, pain syndrome, anosmia, hoarse voice and asthenia. She does not present any hemorrhagic signs, nor respiratory and neurological signs. The obstetrical exam and other devices were normal. Based on clinical evidence, COVID-19 in pregnancy of approximately 15 weeks of amenorrhea was suggested and the RT-PCR test confirmed the diagnosis. The patient was put on treatment with hydroxychloroquine, azithromycin and vitamin C. The outcome was favorable, marked by regression of clinical signs and negativation of the COVID-19 test after one-week treatment. The patient stayed in hospital for 07 days prior to discharge. The medical evaluation one month after her discharge noted a normal-progressive pregnancy of 19 weeks.

Second Case

This is a 31-year-old female lawyer who presented early in her illness with asthenia, vomiting, a dry cough and anorexia progressing in a non-feverish context. She does not remember a possible concept of contagion with a confirmed case of COVID-19. She was about six months pregnant and a history of cystectomy in 2017. A few days later, she presented with vomiting, a anosmia, ageusia, dysphonia and anorexia. She did not report any hemorrhagic signs or respiratory signs. The diagnosis of COVID-19 was made on March 30, 2020 in a pregnancy of approximately 27 weeks with amenorrhea and she was not hospitalized. The patient reports that she did not take any treatment. At the hospital, no

prescription was also made. The course was unremarkable, and the medical evaluation by the management team on June 30th revealed a normal-progressive pregnancy of 39 weeks plus 4 days. However, two weeks after the virologic recovery she presented with asthenia, a pain syndrome like myalgia and arthralgia requiring the prescription of an analgesic and vitamin C.

Third Case

This is a 32-year-old healthcare worker who consulted for tired, general muscle pain, a cold and a dry cough progressing in a feverish context. She does not report having been in contact with a confirmed case of COVID-19. She is pregnant with a pregnancy of around three months. In her antecedents, she is known asthmatic and followed by salbutamol spray. The examination revealed good general health, good state of consciousness, good hemodynamic state, infectious syndrome, pain syndrome, asthenia and pulmonary condensation syndrome. She does not present any hemorrhagic signs, nor respiratory and neurological signs. The obstetrical exam and other devices were normal. In view of the clinical arguments, the coronavirus disease on pregnancy of about 17 weeks of amenorrhea was evoked and the RT-PCR test confirmed the diagnosis on April 27th, 2020. The patient was put on treatment with hydroxy chloroquine, azithromycin, antihistamine and bronchodilator. The evolution was marked by a chronic carrier of SARS-COV2 which caused stress with psychological support during hospitalization. Forty-five days later, the patient was still PCR positive and as of June 30th assessment showed a normal-progressive pregnancy of 27 weeks plus 5 days and still carrying the virus.

Fourth Case

This is a 19-year-old housekeeper patient, screened for having been in contact with a confirmed case of COVID-19. At the beginning asymptomatic, during hospitalization, she presented anorexia and pelvic pain progressing in a non-feverish context. She has a twin pregnancy of 12 weeks. The examination showed good general condition, good state of consciousness, good hemodynamic state, pain syndrome and anorexia. She does not present any hemorrhagic signs, nor respiratory and neurological signs. The obstetrical exam and other devices were normal. In view of the clinical arguments, the coronavirus disease on twin pregnancy of 12 weeks of amenorrhea was evoked and the RT-PCR test confirmed the diagnosis on April 30th, 2020. The patient was put on treatment with hydroxy chloroquine, azithromycin and phluoroglucinol. The evolution was favorable marked by a regression of the clinical signs and a negativation of the COVID-19 test. The patient stayed 12 days in the hospital before her discharge and her medical evaluation one month after the hospitalization revealed a normal twin pregnancy evolving from 18 weeks plus 3 days.

Fifth Case

This is a 30-year-old patient, recent traveler, who consulted for fatigue, generalized muscle pain evolving in a feverish context. She did not want to specify her profession. She is pregnant for about seven months. She has no other specific medical history known. The examination revealed a good general state, a good state of consciousness and a good hemodynamic state. She does not present with hemorrhagic signs, nor respiratory and neurological signs. As part of the systematic screening of travelers, her RT-PCR test confirmed the diagnosis of COVID-19 on June 20th, 2020. However, she refused hospitalization, treatment and a one-month visit after numerous attempts to convince her.

Comments

The mean gestational age was 20 weeks. Chen H et al had noted a gestational age greater than 37 WA in 9 pregnant women and Liu H et al had identified 18 patients with a gestational age between 31 and 40 WA [7,11]. These results lead us to conclude that the pregnant woman is vulnerable at any gestational age. Pregnancy lowers a woman's immunity, which makes her more vulnerable to infection with the new coronavirus and therefore prone to complications that can affect the fetal prognosis but also the maternal prognosis. Specific measures will have to be taken to protect this vulnerable group of the population from COVID-19. Thus, they are at-risk subjects who must scrupulously respect barrier gestures. Clinically, the signs shown by patients with COVID-19 during pregnancy were similar to those of non-pregnant adults infected with COVID-19. Our series showed that three in five patients developed fever, two in five patients had myalgia, dysphonia, one in five patients cough, anorexia, asthenia, anosmia and ageusia. No patient developed respiratory signs. Chen, et al. in China in their study, noted that none of the nine patients developed severe pneumonia and the clinical manifestations consisted mainly of fever, cough, myalgia, sore throat, and diarrhea [7,11]. In pregnant women, respiratory tract infections may get worse. Indeed, they are in an immunosuppressive state and adaptive physiological changes in the respiratory, circulatory, secretory tracts during pregnancy can make them intolerant to hypoxia [7,9].

On the treatment side, no drug specific to COVID-19 has been found to date. Drugs that are safe for the fetus are worth considering for pregnant women with COVID-19 [7,9,14,15]. In our series, four out of five patients were treated with hydroxychloroquine in combination with azithromycin. This treatment regimen was part of a national protocol for the

management of cases of COVID-19 infection in Burkina Faso [13]. The outcome in all patients was favorable for both the product of conception and the mother; however, one patient had a chronic persistence of the virus which created an additional stressful situation for the mother; but also for the scientific world; because we wonder about the cause of this persistence and especially if it is an active virus or not, which could increase the risk of transmission to those around it. Indeed COVID-19 is a new disease with many uncertainties on the question! Is it the vulnerability of the pregnant woman that explains this carrying or are there other factors? This chronic carriage of the virus has led to an increase in the length of hospitalization, causing cumulative stress. The stress was managed with assistance of a psychologist. In our series, other drugs including vitamin C, an antihistamine, and iron plus folic acid were prescribed to address patient-experienced symptoms such as asthenia and the common cold.

The maternal prognosis was good in our series. So far, the results of COVID-19 for the mother appear more promising compared to those of severe acute respiratory syndrome (SARS). Data from a meta-analysis and studies carried out in China, Canada and the United States of America reveal a case fatality rate of 0% for COVID-19 and of 18 to 25% for SARS [8,16,17]. In fact, no patient presented a severe respiratory sign, hence the good maternal prognosis in our series. Studies have shown that pregnant women with coronavirus with severe acute respiratory syndrome (SARS-CoV) have a high risk of miscarriage, premature rupture of membranes, premature labor, intrauterine growth retardation, and intrauterine fetal death [4,7,8,18,19]. Vertical transmission to the fetus is less documented [20]. In our series, the medical evaluation one month after screening and before the end of the study (June 30) revealed progressive pregnancies.

Our result could be explained by the absence of severe respiratory signs in our series. In fact, no patient presented with pneumonia in our cohort, which would have helped to minimize the fetal impact of the novel coronavirus disease. However, signs presented by pregnant women such as fever and cough could have led to cases of abortion. In a context of stress caused by anxiety, anxiety and fear of illness the pregnant women were also afraid of isolation, especially with the feeling of not getting out of it. In fact, three out of five patients were stressed, motivating psychological support during hospitalization. Many uncertainties exist regarding COVID-19 as to its evolution and the vertical transmission of the virus. For the pregnant woman, in addition to her vulnerability linked to her pregnancy, she must manage this uncertainty linked to the disease. At this stress, some pregnant women have been victims of stigma after recovery; for some of their neighbors and for others of their co-workers.

Conclusion

The study allowed us to conclude that COVID-19 spares no one. Although this is only a series of 5 cases, it can be said that well controlled, there are no pregnancy-related complications for pregnant women with COVID-19. For now although the vertical transmission of SARS COV2 is not yet sufficiently documented, the infection and inflammation that have occurred in response to the viral infection could cause sequelae in the mother but also affect the development of the fetus. It is therefore essential to monitor the growth of babies.

Ethical Considerations

The study was submitted to the ethics committee in the vulnerability and COVID -19 section, which issued a favorable opinion by deliberation n° 2020-7-136.

Authors' Contributions

SKA, KBE, OC designed the study, wrote the research protocol, SKA, DEA, CK, KP, KBE, ZH, assembled, analysed the data, and wrote the manuscript;. MC, DS, GA, KP, ID, BJ, ZG collected data;KBE, KDP, DEA, provided the bibliography. KBE translated the article in english; SKS, TB, OA, OC directed the study; PA, OM, LC, TB, KS gived a critical reading and final correction of the article. All authors read and approved the final manuscript.

Data Availability

The study data are available in the archives of the various hospitals that received and cared for the patients.
The datasets used and /or analysed during the current study available from the corresponding autho on reasonable request.

Conflicts of Interest

The authors declare that they have no competing interrest**.**

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