Research Article

Pregnant Woman in the Context of the Covid-19 Pandemic. Our Experience in a Hospital Setting

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Abstract

Introduction

Pregnant women did not escape the SARS-CoV-2 pandemic. Unlike scheduled surgical activities, obstetrical activities could not, in essence, be postponed or cancelled! The management of these parturients therefore had to be adapted and modified in order to limit the complications due to this infection and the risks of spreading the virus.

The objective of this work was to describe the clinical, para-clinical and evolutionary parameters of patients with COVID 19 hospitalized at the department.

Methods

We conducted a retrospective survey over a period of 21 months from February 10, 2020 (date of confirmation of the first case of pregnant woman Covid 19 in the department of gynecology-obstetrics) to December 10, 2021, and including all cases of COVID 19 collected in the department of gynecology-obstetrics of the EHUO Results were expressed as number, percentage or mean ± standard deviation. For univariate analysis, quantitative variables were compared by Student's t test and qualitative variables by Chi^2 or Fisher's exact test. Statistics were performed using epi info software.

Results

61 patients were included, of whom 29 presented with severe COVID 19 (group 1) and 32 patients with moderate or minimal COVID 19 (group 2). The mean age was 29.7 ± 7 years for group 1 and 28.5 ± 7 years for group 2. The mean gestational age was 2.8 for group 1 and 2.5 for group 2. Three patients in Group 1 developed pulmonary embolism, whereas no patient in Group 2 developed this complication (P=0.06). The diagnosis was confirmed each time by spiral angioscan. There were three cases of maternal death in group 1 against no case in the moderate form, we note the factors associated with a maternal death increase in D-dimer (> 3 μg/L), fibrinogen (> 8 g/L) and thrombocytopenia

Discussion

Increased D-dimer (>3 μg/L), fibrinogen (>8 g/L), and thrombocytopenia are poor prognostic factors for the mother. These markers should be monitored regularly during hospitalization of pregnant parturients. The diagnosis of pulmonary embolism may be difficult in this setting but should be considered if there is unexplained worsening of hypoxemia or right heart failure

Conclusion

The postpartum period is the period that has been the subject of the greatest number of modifications with The thromboembolic risk that must be stratified to adapt; thrombo-prophylaxis by taking into account the renal function and the overweight of the patients and the restricted use of NSAIDs. The key point of obstetrical management in this period of pandemic was finally the interdisciplinary cooperation, involving anesthesiologist-resuscitator, gynecologist and pediatricians.

1. Introduction

The COVID-19 pandemic has not spared pregnant women. The clinical and biological picture is variable, not very specific and the evolution is unpredictable because coagulation disturbances are frequently observed during the operation as well as thrombotic clinical events. Unlike scheduled surgical activities, obstetrical activities could not, in essence, be postponed or cancelled. The management of these parturients therefore had to be adapted and modified in order to limit the risks of spreading the virus. The pandemic has led to a review of the organization of care for pregnant women, with the organization of the Covid 19 circuit and a reduction in access for accompanying persons in the labor room and in the delivery suite. The decision on the mode of delivery remained solely dependent on obstetrical evaluation in minor or asymptomatic forms, and the preferred mode of anesthesia for labor or cesarean section remained locoregional anesthesia. The aim of our study is to describe the clinical, paraclinical and evolutionary parameters of patients with COVID 19 in its severe and moderate form.

2. Methods

We conducted a retrospective survey over a period of 21 months from February 10, 2020 (date of confirmation of the first case of pregnant woman

covid 19 in the department of gynecology-obstetrics) to December 10, 2021, and including all cases of COVID 19 collected in the department of gynecology-obstetrics of EHUO. We divided the patients into two groups. Group 1 (patients with a severe form) and group 2 (patients with minimal and moderate forms). The diagnostic criteria of COVID 19 were based on the results of the RT-PCR tests provided by the Pasteur Institute annex in Oran (Algeria). We noted the age of the patients in each group, their origin from another maternity hospital, gestational age, the kinetics of biological anomalies, clinical signs at the time of entry into the service, the indication and mode of delivery, the delay between the time of care and delivery, and the existence of complications. The biological workup on admission included: blood ionogram, renal f onction (creatinine and blood urea), coagulation workup (PT, APTT), uric acid assay and if the platelet count was very low, we had proceeded to search for signs of disseminated intravascular coagulation (DIC). Corticosteroid therapy was started if the term of the pregnancy was less than 34 weeks of amenorrhea (SA). Maternal monitoring was carried out by daily control of the biological balance. Fetal well-being was monitored by Doppler ultrasound. Results were expressed as numbers, percentages, or mean ± standard deviation. For univariate analysis, quantitative variables were compared by Student t test and qualitative variables by Chi^2 or Fisher exact test. Statistics were performed using epi info software.

3. Results

During the study period, 22450 patients delivered in the gyneco-obstetric department of the EHUO. COVID 19 was found in 61 patients. The estimated incidence of this syndrome was therefore 0.27%, or 1 case per 361 pregnancies. Of the 61 COVID 19 cases, 29 had severe form on (group 1) ((47.54%), and 32 had minimal or moderate form on(group 2) (52, 45%). The average age was 29.7 ± 7 years for group 1 and 28.5 ± 7 years for group 2. For the twenty-nine patients in group 1, the mean gestational age was 2.8 (ranging from 1 to 10) and the mean parity was 2. For the thirty-two patients in group 2, the mean gestational age was 2.5 (ranging from 1 to 5) and the mean parity was 1.7. The mean gestational age at the time of hospitalization in our maternity hospital was 33.6 ± 4.8 SA for group 1 and 33.3 ± 5 for group 2. The distribution of clinical signs of the patients according to the forms of Covid 19 is represented in table 1. The biological components of COVID 19 are summarized in table 2. For both groups. Maternal complications are summarized in table 3. Maternal complications were noted in 71.4% of patients in group 1 and 07.3% of patients in group 2, with a significant difference between the two groups. 68% of patients in group 1 and 53% of patients in group 2 delivered by cesarean section (by Pfannenstiel incision). Rachi-anesthesia was the anesthetic technique of choice with 88% of group 1 and 98% of group 2 (Figure 1).

Clinical signs	Group 1	Group 2	p
Fever	85,2%	100,0%	NS
Cough	91,7%	94,1%	NS
Asthenia	100%	80%	NS
Chest pain	85%	20%	S
Digestive sign (presence)	50%	50%	NS
Desaturation	100%	13,3 %	S

Table 1: Clinical signs at admission. Categorical variables are presented in number (percentage)

Biological parameters	Group (1)	Group (2)	p
Average hemoglobin level	9,764	9,944	NS
D-Dimer level	6 µg/L	3 µg/L	S
Average platelet count	80827,59	131235,29	NS
Average fibrinogen level	10 g/L	5.16 g/L	S

Table 2: Biological parameters at admission. Quantitative variables are presented as mean ± standard deviation, qualitative variables as number (percentage) P Significant P< 0 .05)

Maternal complications	Group 1	Group 2	p
	59,1%	0%	S
OAP	21,4%	0,0%	NS
IRA	08,5%	0,5%	NS
ARDS	55,6%	0%	S
Disorder of hemostasis	33,6%	03,3%	S
DIC	40,9%	0,5%	NS

ARF: acute renal failure; APO: acute pulmonary oedema, DIC: disseminated intravascular coagulation; S SIGNIFICANT; NS not significant

Table 3: Maternal Complications. Categorical variables are expressed as a percentage

Three patients in group 1 developed pulmonary embolism, whereas no patient in group 2 developed this complication (P=0.06). The diagnosis was confirmed each time by spiral angioscan. There were three cases of maternal death in group 1 versus none in the moderate form, three risk factors associated with poor maternal prognosis: D-dimer (> 3 µg/L), (p = 0.0001), increased fibrinogen (> 8 g/L (p = 0.006) and thrombocytopenia severe hypovolemia (p = 0.013). The characteristics of the children at birth are summarized in table 4.

	Group 1	**Group 2**	**p**
Prematurity (1)	49,1 %	50,0%	0.72 NS
Average gestational age	33.18 weeks A	33.76 weeks A	0.69 NS
weight	1987,5	1815,0	0.7 NS
prematurity	49,1	50,0	0.4 NS
IUGR	19,0	25,0	0.5 NS

IUGR: intrauterine growth retardation

Table 4: Characteristics of children at birth. Quantitative variables are presented as the mean ± standard deviation, categorical variables in number (percentage)

4. Discussion

The management of pregnant and postpartum patients in the context of an SARS-CoV-2 pandemic requires special attention. The challenge of management is therefore to ensure that the balance of benefits and risks for parturients and fetuses is measured, while preserving the health of caregivers and limiting the risk of contamination. On the other hand, the data seem reassuring in terms of the absence of transmission to the fetus. Thus, the main consequence of neonatal infection is induced prematurity. In our study, the severity of maternal damage was marked in the postpartum period with 03 cases of pulmonary embolism, which is in line with the recommendations that extend the indications. Thromboprophylaxis for parturients infected with the virus. These recommendations, adopted by the Club d'Anesthésie Réanimation en Obstétrique (CARO) and the Société française d'anesthésie réanimation, are particularly relevant during pregnancy and the post-partum period, which are situations at high risk of thromboembolic complications. The diagnosis of pulmonary embolism may be difficult in this context but should be evoked in case of unexplained worsening of hypoxemia or right heart failure. In our study, the reference anaesthesia technique for scheduled caesarean section, whether the women are infected or not, remain perimedullary LRA. However, recourse to general anaesthesia may sometimes be indicated, in particular in the most severe respiratory disorders, because of the risk of destabilization of the respiratory function. This is in line with the SFAR experts who recommend checking for the absence of thrombocytopenia before performing a DSA [5]. Indeed, several obstetric series report thrombocytopenia below 150,000 in up to 35% of patients, and less often prolonged aPTT or decreased fibrinogen [6-8]. The presence of these abnormalities of hemostasis in SARS-CoV-2 infected patients remains poorly explained. In our series, D-dimer (>3 µg/L), fibrinogen (>8 g/L), and thrombocytopenia were found to be associated with maternal death. These markers should be monitored regularly during hospitalization of pregnant parturients.

5. Conclusion

Our retrospective study comparing two groups of patients with Covid 19 demonstrates that the severe form of this virus exposes patients to a higher risk of maternal complications (hemorrhagic, pulmonary) and that Thromboembolic risk must be stratified to

adapt thrombo-prophylaxis by taking into account the renal function and overweight of patients and the restricted use of NSAIDs. This pandemic has been a challenge for the management of pregnant women, whether they are infected with SARS-CoV-2 or not. The entire chain of care had to be rethought, and collaboration between the different disciplines involved was essential during this period, involving gynecologists-obstetricians, anesthesiologists and neonatologists.

Declaration of interest

The authors declare that they have no ties of interest.

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