



Coronavirus infection in pregnancy

Update: Tuesday 24 May 2022

Prepared by the [RCOG Library team](#)

1. Ultrasound Obstet Gynecol. 2022 May 3. doi: 10.1002/uog.24931. Online ahead of print.

Is in-hospital COVID-19 mortality and morbidity associated with gestational age?

Leung C, Simões-E-Silva AC, Oliveira EA.

OBJECTIVE: Because pregnancy involves dynamic changes in the maternal immune system, the present work investigates whether gestational age is associated with in-hospital COVID-19 mortality and morbidity. **METHOD:** Data of pregnant women with SARS-CoV-2 in different gestational age groups (subdivided in trimesters) were collected and analyzed from a Brazilian nationwide database. Multivariate logistic and Cox regression were used to identify in-hospital independent risk factors for in-hospital COVID-19 related mortality and morbidity, measured by time to recovery. **RESULTS:** A total of 7,461 cases were included in the study (9.3%, 28.4%, and 62.3% in 1st, 2nd, and 3rd trimester, respectively). After the adjustment for sociodemographic factors, epidemiologic and clinical characteristics, and intervention related variables, gestational age was not associated with mortality and morbidity. It is also suggested that obstetric centers and social organization healthcare can reduce the risk for mortality and morbidity, respectively. **CONCLUSION:** Despite higher percentage of women admitted in the third trimester, we found no association between gestational age and COVID-19 mortality and morbidity. Therefore, the observed difference in the mortality and morbidity is explained by the different distribution of risk factors per gestational age. This article is protected by copyright. All rights reserved.

DOI: 10.1002/uog.24931 PMID: 35502537

2. An Acad Bras Cienc. 2022 May 2;94(2):e20211283. doi: 10.1590/0001-3765202220211283.

eCollection 2022.

Does being infected with SARS-CoV-2 in the first-trimester increase the risk of miscarriage?

Kiremitli S, Kiremitli T, Ulug P, Kirkinci A, Kurnuc FZ, et al.

Aim of this study is to investigate whether the risk of miscarriage increases in pregnant women who had COVID-19 in first trimester. Our study included 52 patients with SARS-CoV-2 infection detected by RT-PCR and 53 patients with negative RT-PCR test in samples taken with nasopharyngeal swab in the first trimester between March 1 and December 31, 2020. Complete abortion, incomplete abortion, blighted ovum, intrauterine exitus, biochemical pregnancies were accepted as in the miscarriage group (MG). Pregnant women with COVID-19 and control group were compared in terms of demographic data, miscarriage rate and laboratory results. Patients were divided into MG and ongoing pregnancy groups (OPG) and compared in terms of the diagnosed weeks, clinical findings, laboratory results, treatments, and hospitalization. While miscarriage was observed in 15 (28.8%) of pregnant women infected with SARS-CoV-2 in the first trimester, this number was 7 (13.2%) in the control group. While the common symptoms in the MG were cough (60%), fever (53.3%), shortness of breath (53.3%), and fatigue (46.7%) ($p < 0.05$); asymptomatic patients (51.4%) were higher in the OPG ($p < 0.001$). Hospitalized patients were 33.3% in the MG and 8.1% in the OPG



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($p=0.02$). According to the results of our study, the risk of miscarriage increases in pregnant women infected with SARS-CoV-2 (especially in severe infection) in the first trimester.

DOI: 10.1590/0001-3765202220211283 PMID: 35507983

3. Acta Obstet Gynecol Scand. 2022 May 3. doi: 10.1111/aogs.14371. Online ahead of print. Shared risk factors for COVID-19 and preeclampsia in the first trimester: An observational study. Serrano B, Mendoza M, Garcia-Aguilar P, Bonacina E, Garcia-Ruiz I, Garcia-Manau P, et al. INTRODUCTION: The association between preeclampsia and coronavirus disease 2019 (COVID-19) is under study. Previous publications have hypothesized the existence of shared risk factors for both conditions or a deficient trophoblastic invasion as possible explanations for this association. The primary aim of this study was to examine baseline risk factors measured in the first-trimester combined screening for preeclampsia in pregnant women with COVID-19 compared with the general population. A secondary aim of this study was to compare risk factors among patients with mild and severe COVID-19. MATERIAL AND METHODS: This was an observational retrospective study conducted at Vall d'Hebron Hospital Campus (Catalonia, Spain). Study patients were 231 pregnant women undergoing the first-trimester screening for preeclampsia and positive for severe acute respiratory syndrome coronavirus 2 between February 2020 and September 2021. The reference cohort were 13 033 women of the general population from six centers across Catalonia from May 2019 to June 2021. Based on the need for hospitalization, patients were classified in two groups: mild and severe COVID-19. First-trimester screening for preeclampsia included maternal history, mean arterial blood pressure, mean uterine artery pulsatility index (UtAPI), placental growth factor (PIGF), and pregnancy-associated plasma protein-A (PAPP-A). RESULTS: The proportion of cases at high risk for preeclampsia was significantly higher among the COVID-19 group compared with the general population (19.0% and 13.2%, respectively; $p = 0.012$). When analyzing risk factors for preeclampsia individually, women with COVID-19 had higher median body mass index (25.2 vs. 24.5, $p = 0.041$), higher UtAPI multiple of the median (MoM) (1.08 vs. 1.00, $p < 0.001$), higher incidence of chronic hypertension (2.8% vs. 0.9%, $p = 0.015$), and there were fewer smokers (5.7% vs. 11.6%, $p = 0.007$). The MoMs of PIGF and PAPP-A did not differ significantly between both groups (0.96 vs. 0.97, $p = 0.760$ and 1.00 vs. 1.01, $p = 0.432$; respectively). CONCLUSIONS: In patients with COVID-19, there was a higher proportion of women at high risk for preeclampsia at the first-trimester screening than in the general population, mainly because of maternal risk factors, rather than placental signs of a deficient trophoblastic invasion.

DOI: 10.1111/aogs.14371 PMID: 35505629

4. Placenta. 2022 May 1;123:12-23. doi: 10.1016/j.placenta.2022.04.006. Online ahead of print. The clinical impact of maternal COVID-19 on mothers, their infants, and placentas with an analysis of vertical transfer of maternal SARS-CoV-2-specific IgG antibodies.

Ward JD, Cornaby C, Kato T, Gilmore RC, Bunch D, Miller MB, et al.

INTRODUCTION: The effect of SARS-CoV-2 severity or the trimester of infection in pregnant mothers, placentas, and infants is not fully understood. METHODS: A retrospective, observational cohort study in Chapel Hill, NC of 115 mothers with SARS-CoV-2 and singleton pregnancies from December 1, 2019 to May 31, 2021 via chart review to document the infants' weight, length, head circumference, survival, congenital abnormalities, hearing loss, maternal complications, and placental pathology classified by the Amsterdam criteria. RESULTS: Of the 115 mothers, 85.2% were asymptomatic ($n = 37$) or had mild ($n = 61$) symptoms, 13.0% had moderate ($n = 9$) or severe ($n = 6$)



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COVID-19, and 1.74% (n = 2) did not have symptoms recorded. Moderate and severe maternal infections were associated with increased C-section, premature delivery, infant NICU admission, and were more likely to occur in Type 1 (p = 0.0055) and Type 2 (p = 0.0285) diabetic mothers. Only one infant (0.870%) became infected with SARS-CoV-2, which was not via the placenta. Most placentas (n = 63, 54.8%) did not show specific histologic findings; however, a subset showed mild maternal vascular malperfusion (n = 26, 22.6%) and/or mild microscopic ascending intrauterine infection (n = 28, 24.3%). The infants had no identifiable congenital abnormalities, and all infants and mothers survived. DISCUSSION: Most mothers and their infants had a routine clinical course; however, moderate and severe COVID-19 maternal infections were associated with pregnancy complications and premature delivery. Mothers with pre-existing, non-gestational diabetes were at greatest risk of developing moderate or severe COVID-19. The placental injury patterns of maternal vascular malperfusion and/or microscopic ascending intrauterine infection were not associated with maternal COVID-19 severity.

DOI: 10.1016/j.placenta.2022.04.006 PMID: 35512490

5. Am J Perinatol. 2022 May 6. doi: 10.1055/s-0042-1748158. Online ahead of print.

COVID-19 Vaccinations in Pregnancy: Comparative Evaluation of Acute Side Effects and Self-Reported Impact on Quality of Life between Pregnant and Non-pregnant Women in the United States.

Brinkley E, Mack CD, Albert L, Knuth K, Reynolds MW, Toovey S, Dreyer NA.

OBJECTIVE: The objective of this study was to describe the acute side effects experienced by pregnant women who received a coronavirus disease 2019 (COVID-19) vaccine in the United States and to compare their experience to non-pregnant women of similar age. STUDY DESIGN: Adults who received a COVID-19 vaccine in the United States were invited via social media to enroll in an online, longitudinal, community-based registry (www.helpstopCOVID19.com). Participants self-reported pregnancy status, vaccination dates, manufacturer, acute side effects, impact on work and self-care, medical consultation, and hospitalization. This analysis was restricted to women aged 20 to 39 at the time of vaccination. Side effects reported by pregnant women were compared to those reported by non-pregnant women. RESULTS: This analysis included 946 pregnant women, with 572 (60%) receiving at least one dose of Pfizer, 321 (34%) Moderna, and 53 (6%) J&J, and 1,178 non-pregnant women. Demographic and medical history were similar across manufacturers for both cohorts. Overall, pregnant women reported similar side effects as non-pregnant women, with the most common being injection site reactions (83 vs. 87%), fatigue (72 vs. 78%), and headache (45 vs. 59%). Pregnant women reported fewer side effects (median: 3 vs. 4, respectively) (Table 2). In both cohorts, very few reported seeking medical care (<5%) or being hospitalized (<0.3%) after vaccination. Fewer pregnant women reported working less after vaccination than non-pregnant women (32 vs. 40%) or trouble with self-care (32 vs. 46%), respectively (Table 2). CONCLUSION: Pregnant women reported similar COVID-19 vaccine side effects as non-pregnant women, although fewer total side effects; pregnant women judged these side effects to have less impact on work and self-care. While these results do not address pregnancy outcomes or long-term effects, findings about acute side effects and impact offer reassurance for all three vaccines in terms of tolerability. KEY POINTS: · COVID vaccines were well tolerated by pregnant women.. · Pregnant women reported fewer total side effects.. · Pregnant women reported less impact on work and self-care.. DOI: 10.1055/s-0042-1748158 PMID: 35523212



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6. J Obstet Gynaecol India. 2022 May 4:1-7. doi: 10.1007/s13224-022-01641-y. Online ahead of print. Poorer Obstetrics Outcomes During the Second Wave of COVID-19 in India.

Mohini, Priyadarshini S, Rath SK, Verma C, Das A.

INTRODUCTION: Outcomes of pregnancy in COVID 19-infected mothers are worse than in the general population. Due to immunological changes, antenatal women are more vulnerable to severe complications. The India has experienced two waves of the disease. We analysed whether the second wave of the disease had affected pregnancy outcomes differently by comparing pregnancy outcomes with those of the first wave. MATERIALS AND METHOD: The study population included all the women delivered in the same tertiary centre during both the waves. Maternal outcome parameters include maternal oxygen requirement, maternal ICU admission and maternal death. Foetal outcome parameters include APGAR scores, preterm deliveries and NICU admissions, maternal and foetal outcome parameters between the first and the second waves were compared. RESULTS: Demographic parameters were similar in both the waves of COVID 19. No significant differences were found in pre-pregnancy comorbidities, high-risk pregnancies and mode of deliveries between the two waves. Maternal oxygen requirement increased in the second wave [first wave 6(4.7%) vs second wave 25(40.3%) (p-value < 0.001)]. There was also a significant increase in ICU admission [4(3.1%) vs 8(12.9%)], which was in positive correlation with maternal oxygen requirement during the second wave ($r = 0.81$, $p < 0.001$). However, there was no significant difference in maternal death [2(1.6%) vs 2(3.2%)]. No significant change noted in neonatal outcomes except for an increase in neonatal sepsis [0 vs 5(8.1%)]. CONCLUSION: Mothers had more severe diseases during the second wave. But this did not translate into significant increase in maternal mortality and poor neonatal outcomes, possibly due to better preparedness.

DOI: 10.1007/s13224-022-01641-y PMCID: PMC9065234 PMID: 35528222

7. Geburtshilfe Frauenheilkd. 2022 May 6;82(5):510-516. doi: 10.1055/a-1721-4908. eCollection 2022 May.

Assessment of Neonatal Cord Blood SARS-CoV-2 Antibodies after COVID-19 Vaccination in Pregnancy: A Prospective Cohort Study.

Sourouni M, Braun J, Oelmeier K, Möllers M, Willy D, Hennies MT, et al.

Introduction Maternally derived antibodies are a key element of neonatal immunity. So far, limited data has shown transplacental transmission of antibodies after coronavirus disease 2019 (COVID-19) vaccination with BNT162b2 in the third trimester. Our aim was to detect vertically transferred immunity after COVID-19 vaccination with BNT162b2 (Comirnaty, BioNTech-Pfizer) or mRNA-1273 (Spikevax, Moderna) in the first, second or third trimester of pregnancy, and investigate the impact of maternal characteristics on umbilical cord antibody titre in newborns after delivery. Study Design Women who gave birth in our department and were vaccinated against COVID-19 during pregnancy were enrolled in CRONOS Satellite, a subproject of the German COVID-19-Related Obstetric and Neonatal Outcome Study. The titre of immunoglobulin G (IgG) antibodies to the receptor-binding domain of the SARS-CoV-2 spike protein was quantified in umbilical cord blood using the SARS-CoV-2 IgG II Quant immunoassay. Correlations between antibody titre and variables, including week of pregnancy when vaccinated, interval between vaccination and delivery, age and body mass index (BMI) were assessed with Spearman's rank correlation. A follow-up was conducted by phone interview 4 - 6 weeks after delivery. Results The study cohort consisted of 70 women and their 74 newborns. Vaccine-generated antibodies were present in all samples, irrespective of the vaccination type or time of vaccination. None of the parameters of interest showed a meaningful correlation



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with cord blood antibody concentrations (rho values < 0.5). No adverse outcomes (including foetal malformation) were reported, even after vaccination in the first trimester. Conclusions
Transplacental passage of SARS-CoV-2 antibodies from mother to child was demonstrated in all cases in the present study. It can therefore be assumed that the newborns of mothers vaccinated at any time during pregnancy receive antibodies via the placenta which potentially provide them with protection against COVID-19. This is an additional argument when counselling pregnant women about vaccination in pregnancy.

DOI: 10.1055/a-1721-4908 PMCID: PMC9076212 PMID: 35528187

8. J Obstet Gynaecol Res. 2022 May 10. doi: 10.1111/jog.15285. Online ahead of print.

The vaccination status and adverse effects of COVID-19 vaccine among pregnant women in Japan in 2021.

Komine-Aizawa S, Haruyama Y, Deguchi M, Hayakawa S, Kawana K, Kobashi G, et al.

To investigate the vaccination status and adverse reactions to the COVID-19 vaccine among pregnant women in Japan, we conducted an online questionnaire survey from October 5 to November 22, 2021. The number of participants in the online survey was 6576. Of the participants, 4840 (73.6%) were vaccinated twice, and 557 (8.5%) were vaccinated once. A total of 1179 (17.9%) responders had never been vaccinated against COVID-19. The most frequent adverse reaction was local pain at the injection site. The incidence of local adverse reactions was almost identical after the first and the second vaccinations, while systemic reactions, such as fever and fatigue/malaise, and adverse reactions outside the vaccination site such as headache and arthralgia, were more frequent after the second vaccination than after the first vaccination. Regarding the obstetrical complications, uterine tension and/or contraction was observed in 1.65% of the pregnant women after the first vaccination and in 2.98% after the second vaccination, and uterine pain appeared in 1.06% of the pregnant women after the second vaccination. However, serious symptoms, such as hemorrhage, decreased fetal movement, edema, increased blood pressure, and amniorrhexis, were seen in less than 1% of vaccinated women after both the first and second vaccinations. This study clarified the characteristics of vaccination, adverse reactions, and obstetrical symptoms in pregnant women in Japan who had the COVID-19 vaccine up to the second dose. As a booster vaccination is currently underway, further study is needed to improve the management of pregnant women during the current pandemic.

DOI: 10.1111/jog.15285 PMID: 35537777

9. Lancet Reg Health Am. 2022 Aug;12:100269. doi: 10.1016/j.lana.2022.100269. Epub 2022 May 6. Maternal mortality linked to COVID-19 in Latin America: Results from a multi-country collaborative database of 447 deaths.

Maza-Arnedo F, Paternina-Caicedo A, Sosa CG, de Mucio B, Rojas-Suarez J, Say L, et al.

BACKGROUND: This study aimed to describe the clinical characteristics of maternal deaths associated with COVID-19 registered in a collaborative Latin-American multi-country database.

METHODS: This was an observational study implemented from March 1st 2020 to November 29th 2021 in eight Latin American countries. Information was based on the Perinatal Information System from the Latin American Center for Perinatology, Women and Reproductive Health. We summarized categorical variables as frequencies and percentages and continuous variables into median with interquartile ranges. FINDINGS: We identified a total of 447 deaths. The median maternal age was 31 years. 86.4% of women were infected antepartum, with most of the cases (60.3%) detected in the



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third trimester of pregnancy. The most frequent symptoms at first consultation and admission were dyspnea (73.0%), fever (69.0%), and cough (59.0%). Organ dysfunction was reported in 90.4% of women during admission. A total of 64.8% women were admitted to critical care for a median length of eight days. In most cases, the death occurred during the puerperium, with a median of seven days between delivery and death. Preterm delivery was the most common perinatal complication (76.9%) and 59.9% were low birth weight. INTERPRETATION: This study describes the characteristics of maternal deaths in a comprehensive multi-country database in Latin America during the COVID-19 pandemic. Barriers faced by Latin American pregnant women to access intensive care services when required were also revealed. Decision-makers should strengthen severity awareness, and referral strategies to avoid potential delays. FUNDING: Latin American Center for Perinatology, Women and Reproductive Health.

DOI: 10.1016/j.lana.2022.100269 PMID: 35539820

11. J Clin Med. 2022 Apr 30;11(9):2540. doi: 10.3390/jcm11092540.

Obstetric and Neonatal Outcomes following COVID-19 Vaccination in Pregnancy.

Peretz-Machluf R, Hirsh-Yechezkel G, Zaslavsky-Paltiel I, Farhi A, Avisar N, Lerner-Geva L, et al.

COVID-19 infection imposes a risk for pregnant individuals and may lead to adverse maternal and obstetric outcomes. This is a retrospective cohort study of all women giving birth between March and July 2021 at a single tertiary center. Obstetric and neonatal outcomes were compared between vaccinated and non-vaccinated pregnant women with singleton pregnancies. Women with prior COVID-19 infection, multiple gestations and stillbirth were excluded from the study. Of 4708 women who delivered during the study period, 3700 met the eligibility criteria, of whom 3240 were vaccinated during pregnancy. Compared with the non-vaccinated group, the vaccinated group was characterized by a lower rate of smoking (3.70% vs. 6.67%, $p = 0.0028$), whereas other maternal characteristics were not significantly different. Multivariable analysis demonstrated that COVID-19 mRNA vaccination was not significantly associated with increased risk of preterm birth as well as other adverse obstetric outcomes including hypertensive diseases of pregnancy, cesarean delivery and small for gestational age. However, a significantly lower risk for meconium-stained amniotic fluid was observed among the vaccinated group (adjusted odds ratio 0.63; 95% confidence interval, 0.46-0.86, $p = 0.0039$). Moreover, the vaccine was not significantly associated with increased risk of neonatal adverse outcomes including respiratory complications and NICU hospitalization. In conclusion, BNT162b2 messenger RNA vaccination during pregnancy was not associated with an increased rate of adverse obstetric and neonatal outcomes. Therefore, in view of its safety on one hand, and the risk associated with COVID-19 disease in pregnancy on the other hand, BNT 162b2 COVID-19 vaccine should be recommended for pregnant women.

DOI: 10.3390/jcm11092540 PMID: 35566665

12. J Reprod Immunol. 2022 May 10;152:103639. doi: 10.1016/j.jri.2022.103639. Online ahead of print.

Comment to "Pregnancy and COVID-19, focus on vaccine and pharmacological treatment".

Ceulemans M, Sillis L, Foulon V, Panchaud A, Winterfeld U, Pomar L(5), et al.

DOI: 10.1016/j.jri.2022.103639 PMID: 35569346



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15. J Hosp Infect. 2022 May 15:S0195-6701(22)00136-0. doi: 10.1016/j.jhin.2022.04.019. Online ahead of print.

Maternity services response to the COVID-19 pandemic: how Public Health England guidance was implemented in practice.

Hanley S, Raybould G, Baxter E, Gray J, Sharkey D, Walker KF.

INTRODUCTION: The rapidly evolving COVID-19 pandemic required systemic change in how healthcare was delivered to minimise virus transmission whilst maintaining safe service delivery. Deemed at 'moderate-high risk', maternity patients are an important patient group that require consideration. Public Health England (PHE) issued national guidance on how to adjust these services. **AIM:** To explore how maternity units in England implemented PHE guidance. **METHODS:** An online survey of 22 items was distributed to individuals that had worked on an England based maternity unit during the COVID-19 pandemic. The questionnaire was designed and tested by the multidisciplinary research team. Data was collected from November 2020 to July 2021. **FINDINGS:** Forty-four participants across thirty-three maternity units responded. 93% were able to test all women requiring an overnight stay for COVID-19. Only 27% reported birth partners were tested for COVID-19. Only 73% reported they were able to isolate all COVID-19 positive patients in single rooms. 84% stated they were aware of current PHE guidance on personal protective equipment (PPE) and 82% felt 'confident' in donning/doffing of PPE. Priorities for the future include rapid testing and a focus on community service provision. **CONCLUSIONS:** PHE COVID-19 guidance was implemented differently in maternity units across England due to the varying resources available at each trust leading to variable ability to test and isolate patients as recommended. More specific, tailored guidance for infection control measures against COVID-19 is needed for maternity settings due to their unique position.

DOI: 10.1016/j.jhin.2022.04.019 PMID: 35584730

16. Cureus. 2022 Apr 17;14(4):e24201. doi: 10.7759/cureus.24201. eCollection 2022 Apr.

Effects of SARS-CoV-2 Variants on Maternal Infection and Severity: A Single-Center Experience.

Kosovalı BD, Tezcan B, Mutlu NM.

Background and aims Pregnant women are one of the vulnerable groups affected by COVID-19. With the mutation of the virus, the severity of the disease in this vulnerable group may vary in different waves of COVID-19 subtypes. The aim of this study is to define the demographic, clinical, laboratory, and mortality results of pregnant COVID-19 patients according to three time frames (March to December 2020, January to June 2021, and July to November 2021). **Materials and methods** The data of patients admitted to the ICU between March 23, 2020, and November 30, 2021, were retrospectively scanned. Pregnant patients with SARS-CoV-2 PCR test positivity or pregnant patients with COVID-19 who have a negative PCR test but symptoms of COVID-19 and radiological findings consistent with COVID-19 on thorax CT who need intensive care were included in the study. The patients were divided into three groups according to the dates when the Ministry of Health of the Republic of Turkey reported the variants of COVID-19 in Turkey. The nonvariant type was dominant in the first period (March to December 2020), alpha and beta variants were dominant in the second period (January to June 2021), and the delta variant appeared in the last period (July to November 2021). **Demographic, clinical, and laboratory findings** at the first admission to the ICU and mortality rates of the patients were recorded. **Results** PCR test was performed in all 109 patients, of whom 101 were PCR test positive. In other eight patients, despite the negative PCR test, thorax CT findings were typical of COVID-19 pneumonia, and other bacterial and viral agents were also excluded. **The**



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mean age of the patients was 30.53 years, the mean APACHE II score was 9.68, and the mean gestational age was 28.55 weeks. Around 72.5% of the patients were in the third trimester. Of the 101 PCR-positive patients, 20.2% were delta variants, 16.5% alpha or beta variants, and 63.3% were of unknown variants. Five of the patients were vaccinated. The most common symptom was dyspnea (94.5%), and the most common comorbidity was hypothyroidism (9.17%). Invasive mechanical ventilation (IMV) was needed in 44.95% of pregnant patients. The distribution of pregnant patients admitted to the ICU according to the periods March to December 2020, January to June 2021, and July to November 2021 was 16.5%, 21.1%, and 62.4%, respectively ($p < 0.001$). Two groups of patients were compared: those that survived versus those that deceased. Variables predicting mortality were APACHE score, IMV requirement, length of stay in the ICU, prone positioning, Anakinra treatment, and ECMO (extracorporeal membrane oxygenator) requirement, which were significantly higher in the deceased group than in the living group ($p < 0.001$, $p < 0.001$, $p = 0.001$, $p < 0.001$, and $p = 0.001$, respectively). There was no significant difference between the patients' age, gestational age, variants, treatments other than Anakinra, and the number of patients admitted to the ICU in the three periods ($p = 0.667$, $p = 0.174$, $p = 0.904$, and $p = 0.605$, respectively). In the multiple logistic regression analysis for mortality, high APACHE II score and IMV requirement were found as risk factors for mortality. Conclusion In the last period of delta variant predominance, pregnant COVID-19 patients were admitted to the ICU significantly more frequently than in the first two periods. Mechanical ventilation requirement and high APACHE II score were determined as risk factors for mortality.

DOI: 10.7759/cureus.24201 PMCID: PMC9112371 PMID: 35592191

17. J Obstet Gynaecol. 2022 May 23:1-5. doi: 10.1080/01443615.2022.2054681. Online ahead of print.

The role of laboratory parameters in predicting severity of COVID-19 disease in pregnant patients. Sahin O, Aktöz F, Bağcı H, Vurgun E.

We aimed to examine the relationship between laboratory markers and the severity of the disease in pregnant women diagnosed with coronavirus disease 2019 (COVID-19). Clinical records were retrospectively reviewed for 112 pregnant women. Patients diagnosed with COVID-19 were divided into two groups as mild/moderate and severe. The relationship between predicting the severity of the disease and laboratory parameters was investigated. Neutrophil lymphocyte ratio, C-reactive protein (CRP), ferritin and aspartate aminotransferase levels were significantly higher in severe COVID-19 cases than mild/moderate cases ($p = .048$, $p = .003$, $p = .015$ and $p = .035$, respectively). CRP was found to be the most useful marker in terms of diagnostic performance with a cut off value of 10.8 (sensitivity 80%, specificity 56.1%, NPV 88.5% and PPV 40.0%). The best diagnostic performance was obtained using CRP and ferritin combined with cut-offs of 10.8 mg/L for CRP and 26.5 μ g/L for ferritin. Combined CRP and ferritin showed sensitivity, specificity, negative predictive value and positive predictive value of 94.7%, 52.8%, 96.6% and 41.9%, respectively, in predicting severe COVID-19. The combination of CRP and ferritin parameters may be useful in estimating the severity of the disease in pregnant patients who were initially diagnosed with COVID-19. Impact Statement What is already known about this subject? Coronavirus disease 2019 (COVID-19) can rapidly develop into acute respiratory distress syndrome (ARDS) and result in serious complications in some pregnant patients. Therefore, timely diagnosis of patients is crucial. Most previous reports of COVID-19 laboratory results are based on data from the general population and limited information is available regarding pregnancy status. Although laboratory medicine makes an



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important contribution to clinical decision making in many infectious diseases, including COVID-19, studies to predict the severity of the disease with laboratory markers are limited and the results are contradictory. What do the results of this study add? Our study shows that C-reactive protein (CRP), neutrophil lymphocyte ratio (NLR), ferritin and aspartate aminotransferase (AST) are associated with severe disease in pregnant women diagnosed with COVID-19. In addition, the use of combined CRP and ferritin appears to have higher sensitivity and negative predictive value than using other tests alone. Furthermore, this study shows that coagulation markers are not useful in predicting disease severity in pregnancy. What are the implications of these findings for clinical practice and/or further research? Predicting the severity of COVID-19 disease in pregnancy can prevent unnecessary hospitalisations and allow the implementation of the necessary clinical approach. Further studies can focus on the clinical usefulness of these parameters in predicting severe COVID-19 in pregnancy. DOI: 10.1080/01443615.2022.2054681 PMID: 35603633

18. Sci Rep. 2022 May 19;12(1):8355. doi: 10.1038/s41598-022-12395-y.

The association between maternal characteristics and SARS-CoV-2 in pregnancy: a population-based registry study in Sweden and Norway.

Örtqvist AK, Magnus MC, Söderling J, Oakley L, Nybo Andersen AM, Håberg SE, et al.

The objectives of the current study were to identify risk factors for SARS-CoV-2 positivity, and to address how different testing strategies, choice of comparison group, and population background characteristics may influence observed associations. National registries data for 107,627 pregnant women in Sweden and 81,195 in Norway, were used to identify risk factors for SARS-CoV-2, separately for women under non-universal testing (testing by indication) and universal testing (testing of all pregnant women in contact with a delivery ward). We also investigated underlying characteristics associated with testing for SARS-CoV-2. Overall, 2.1% of pregnant women in Sweden and 1.1% in Norway were test-positive during the pandemic's first 18 months. We show that the choice of test strategy for SARS-CoV-2 provided different associations with risk factors for the disease; for instance, women who were overweight, obese or had gestational diabetes had increased odds of being test-positive under non-universal testing, but not under universal testing. Nevertheless, a consistent pattern of association between being born in the Middle East and Africa and test-positivity was found independent of test strategy and in both countries. These women were also less likely to get tested. Our results are useful to consider for surveillance and clinical recommendations for pregnant women during the current and future pandemics.

DOI: 10.1038/s41598-022-12395-y PMCID: PMC9120467 PMID: 35589871

W1809929

Self-Reported Medication Use among Pregnant and Postpartum Women during the Third Wave of the COVID-19 Pandemic: A European Multinational Cross-Sectional Study

Gerbier, E.; Favre, G.; Tauqeer, F.; Winterfeld, U.; Stojanov, M.; Oliver, A.; Passier, A.; Nordeng, H.; Pomar, L.; Baud, D.; Panchaud, A.; Meyer-Masseti, C.; Ceulemans, M.

International Journal of Environmental Research and Public Health; 19(9):5335, 2022.

Information on medication utilization among pregnant and postpartum women during the pandemic is lacking. We described the prevalence and patterns of self-reported medication use among pregnant and postpartum women during the third wave of the pandemic (June–August 2021). An online questionnaire was distributed in five European countries between June–August 2021.

Pregnant women or women who had delivered in the three preceding months, and ≥18 years old,



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could participate. The prevalence of overall medication use, self-medication, and changes in chronic medication use were determined. A total of 2158 women out of 5210 participants (41.4%) used at least one medication. Analgesics (paracetamol), systemic antihistamines (cetirizine), and drugs for gastric disorders (omeprazole) were the three most used classes. Anti-infectives were less prevalent than during pre-pandemic times. Antidepressants and anxiety related medication use remained similar, despite a higher prevalence of these symptoms. Self-medication was reported in 19.4% of women, and 4.1% of chronic medication users reported that they changed a chronic medication on personal initiative due to the pandemic. In conclusion, medication use patterns in our cohort were mostly similar to those of the first COVID-19 wave and the pre-pandemic period. More studies are needed to explore factors associated with self-medication and changes in chronic medication use due to the pandemic in this perinatal population.

<https://doi.org/10.3390/ijerph19095335>
10.3390/ijerph19095335

W1810019

The Impact of SARS-CoV-2 Infection on Premature Birth-Our Experience as COVID Center
Bobei, Tina-Ioana, Haj Hamoud, Bashar, Sima, Romina-Marina, Gorecki, Gabriel-Petre, Poenaru, Mircea-Octavian, Olaru, Octavian-Gabriel, Ples, Liana
Medicina; 58(5):587, 2022.

Information about the impact of SARS-CoV-2 infection on pregnant women is still limited and raises challenges, even as publications are increasing rapidly. The aim of the present study was to determine the impact of SARS-CoV-2 infection on preterm birth pregnancies. We performed a prospective, observational study in a COVID-only hospital, which included 34 pregnant women with SARS-CoV-2 infection and preterm birth compared with a control group of 48 healthy women with preterm birth. The rate of cesarean delivery was 82% in the study group versus 6% for the control group. We observed a strong correlation between premature birth and the presence of COVID-19 symptoms (cough $p = 0.029$, fever $p = 0.001$, and chills $p = 0.001$). The risk for premature birth is correlated to a lower value of oxygen saturation ($p = 0.001$) and extensive radiologic pulmonary lesions ($p = 0.025$). The COVID-19 pregnant women with preterm delivery were older, and experienced an exacerbation of severe respiratory symptoms, decreased saturation of oxygen, increased inflammatory markers, severe pulmonary lesions and decreased lymphocytes.

<https://doi.org/10.3390/medicina58050587>
10.3390/medicina58050587

W1815727

The rate of SARS-CoV-2 among asymptomatic non-immunised low-risk parturient women between the two waves

Al-Hussaini, Tarek Khalaf, EzzEldin, Azza M.; Shaaban, Omar M.; Abdel-Aleem, Mahmoud A.; Kamal, Dalia Tarik, Ibrahim, Mostafa N.

Journal of obstetrics and gynaecology : the journal of the Institute of Obstetrics and Gynaecology;: 1-6, 2022.

This study was conducted to evaluate the rate of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection and immunity among asymptomatic non-immunised low-risk parturient women and their newborns. A cross-sectional study conducted in a tertiary hospital during the nadir period of new cases in Egypt. All asymptomatic pregnant, low risk and non-immunised women were



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included. All eligible participants had been subjected to SARS-CoV-2 nasopharyngeal swabs according to CDC and sampling of maternal and umbilical blood to evaluate the presence of coronavirus disease 2019 (COVID-19) IgM and IgG antibodies by immunochromatographic assay. Two cases out of 171 (1.2%) parturient women were tested positive for PCR swab to COVID-19 infection. Furthermore, COVID-19 IgG and IgM antibodies testing showed that 67.8% of women were negative for both IgG and IGM, 24.6% were positive for IgG only, 4.1% were positive for IgM only, while 3.5% were positive for both IgG and IgM. Regarding neonatal testing for immunity, 28.1% of the neonates were positive to IgG only and none for IgM. The rate of positive PCR patients among asymptomatic low-risk parturient women was 1.2%. About quarter of women had got herd immunity as evident by positive IgG antibodies. IgG antibodies transferred to the neonates in almost all cases. Impact Statement What is already known on this subject? Coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has become a global public health emergency. Asymptomatic pregnant women with coronavirus disease can transmit their infection to their newborn, family members and the health care providers. What do the results of this study add? The study showed very low (1.2%) prevalence of COVID positive cases among asymptomatic pregnant women admitted to our facility. Only two cases out of 171 parturient women tested PCR positive for COVID-19 infection (1.2%). SARS-Cov-2 IgG and IgM antibodies testing showed, about a quarter (24.6%) were positive for IgG antibodies, 4.1% were positive for IgM antibodies, while 3.5% were positive for both IgG and IgM. On the other hand, 28.1% of the neonates were positive to IgG only and none of the newborns had had IgM antibodies in their cord blood. What are the implications of these findings for clinical practice and/or further research? The first wave of COVID-19 pandemic in Egypt left behind at least a quarter of pregnant women with a positive antibody denoting some immunity. This immunity is usually transmitted to the neonates in almost all cases.

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10.1080/01443615.2022.2049720

W1819422

COVID-19 during pregnancy and its impact on the developing auditory system

Veeranna, Sangamanatha Ankmnal, Youngblood, Patricia LeeAnn, Bradshaw, Lucy, Marx, Charles G. American Journal of Otolaryngology; Volume 43, Issue 4: 103484, July-August 2022.

Background This study compared distortion product otoacoustic emissions (DPOAEs) and click-evoked auditory brainstem responses (ABRs) recorded from infants whose mother had Covid-19 during pregnancy (Covid-19 group) to infants whose mother did not have Covid-19 (Control group) during pregnancy. **Methods** This study retrospectively examined records of infants in the Covid-19 group (n = 15) and control group (n = 46) who had distortion product otoacoustic emissions (DPOAEs) and click-evoked auditory brainstem responses (ABRs) recorded as part of their clinical assessment. DPOAE amplitudes, absolute latencies (I, III, and V), and I-V interpeak intervals were examined. Results DPOAE amplitudes were similar between the Covid-19 group and the control group. The absolute latency of wave I was similar between groups. But absolute latencies III and V and I-V interpeak intervals of the Covid-19 group were significantly prolonged compared to the control group. **Conclusion** Covid-19 infection and its complications during pregnancy may not affect the cochlear function but may affect the functioning of the auditory brainstem.

<https://doi.org/10.1016/j.amjoto.2022.103484>

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W1819399

Early adverse events and immune response following COVID-19 booster vaccination in pregnancy
Toussia-Cohen, S.; Peretz-Machluf, R.; Bookstein-Peretz, S.; Segal, O.; Asraf, K.; Doolman, R.; Kubani, Y.; Gonen, T.; Regev-Yochay, G.; Yinon, Y.

Ultrasound in Obstetrics & Gynecology; n/a(n/a), 2022.

Extract: In conclusion, this study confirms the safety regarding early adverse events and immunogenicity, as well as the lack of early obstetric complications of the BNT162b2 third dose vaccine in pregnant women.

<https://doi.org/10.1002/uog.24926>

10.1002/uog.24926

W1821118

Observational study on necrotizing enterocolitis in neonates born to SARS-CoV-2-positive mothers
Angelika, Dina, Etika, Risa, Kusumawardani, Naomi Nathania, Mithra, Setya, Ugrasena, I. Dewa Gede
Annals of Medicine and Surgery;: 103711, 2022.

Background The impact of the severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2) pandemic on expectant mother and their babies extends to many aspects of life. Necrotizing enterocolitis (NEC) has been recognized as a life-threatening gastrointestinal inflammatory process in neonates that has high rates of morbidity and mortality. Objective To investigate factors associated with NEC in hospitalized neonates whose mothers were SARS-CoV-2-positive and their relationship to mortality. Method This observational study was conducted from May 2020 to March 2021. All neonates who were hospitalized, after confirming that the mother was SARS-CoV-2-positive, were included in this study. The confirmation of positive SARS-CoV-2 was determined according to the reverse transcription-polymerase chain reaction (PCR) assay. The neonatal SARS-CoV-2 test was performed on the first day of birth. NEC was established based on a suggestive clinical presentation and abnormal abdominal radiographs.

Results: Of the 125 neonates enrolled in this study, there were 5 neonates who developed NEC and only one survived. Significant associated factors with NEC included lower birth weight ($p < 0.001$), lower gestational age ($p < 0.001$), positive SARS-CoV-2 PCR results (OR = 15.333; 95% CI = 2.074–113.381, $p = 0.007$), asphyxia (OR = 13.143; 95% CI = 1.411–122.443, $p = 0.024$), and mortality (OR = 156.000; 95% CI = 13.157–1849.623; $p < 0.001$). Mortality was significantly associated with lower gestational age ($p = 0.025$), cesarean section delivery ($p = 0.025$), and asphyxia ($p = 0.025$).

Conclusion: Significant associated factors with NEC in neonates born to SARS-CoV-2-positive mothers included positive SARS-CoV-2 PCR results, asphyxia, lower gestational age, and lower birth weight. In addition to caesarean section delivery, these factors were related to mortality in neonates in such conditions.

<https://doi.org/10.1016/j.amsu.2022.103711>

10.1016/j.amsu.2022.103711

W1820578

RAMIFICATION OF COVID-19 INFECTION AT THE TIME OF DELIVERY

Chalotra, S.; Kanth, A.; Gupta, N.; Sharma, P.

European Journal of Molecular and Clinical Medicine; 9(3):2673-2681, 2022.

Background- For successful management of Covid-19 pregnancy, adequate information



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and understanding of its clinical presentation and impact of the disease on pregnant mothers and their newborns is required.

Aim- To describe the clinical manifestations of COVID -19 infection in pregnant women during peripartum period and to study the clinical outcomes of neonates born to these mothers.

Methods- This prospective study was conducted at a COVID-19 Hospital of North India, from May 2021 to July 2021. All Covid-19 positive pregnant women who presented at the time of labor (symptomatic or asymptomatic) were included in the study. Follow up of these women and their newborns was done till discharge and neonates were further followed up till 28 days of life.

Results-Total 70 patients were included in the study (24.2% symptomatic and 75.7% asymptomatic). Eighteen (25.7%) were NVD and 52(74.2%) were LSCS. LSCS was done more in symptomatic subjects ($p < 0.05$). Frequency of AFD is higher in symptomatic subjects ($p \text{ value} < 0.05$). Co morbidities noted were PIH, GDM, hypothyroidism and anemia in 15(21.4%), 2(2.8%), 11(15.7%) and 22(31.4%) respectively. All study women were successfully discharged. There were 69 live births(53(76.8%) term and 16(23.1%) preterms)and 1 IUD. Two (2.8%) babies were tested positive for COVID19 . Both remained asymptomatic and discharged. Total 11 neonates required NICU admission due to non covid reasons . Number of deaths among neonates were 2 (2.8%). During followup visits 5(9.09%) neonates required readmission in NICU . Inadequate weight gain was seen in 3(5.4%) babies. None developed COVID related symptoms.

Conclusion- COVID 19 infection during pregnancy is not associated with severe clinical presentation, high mortality and morbidity. There may be an association between symptomatic COVID19 pregnant women and AFD. There is high incidence of prematurity and LBW in neonates born to COVID positive mothers.

https://ejmcm.com/article_17701_b7214df4d8a8153999533af9a4d7e7dd.pdf

W1822297

Access to maternal health services during COVID-19 pandemic, re-examining the three delays among pregnant women in Ilubabor zone, southwest Ethiopia: A cross-sectional study

Abdisa, Diriba Kumara, Jaleta, Debela Dereje, Feyisa, Jira Wakoya, Kitila, Keno Melkamu, Berhanu, Robera Demissie

PLOS ONE; 17(5):e0268196-e0268196, 2022.

Background: All women require access to high-quality care during pregnancy, labor, and after childbirth. The occurrence of delay at any stage is one of the major causes of maternal mortality. There is, however, a scarcity of data on women's access to maternal health services during the COVID-19 pandemic. Therefore, the goal of this study was to assess the magnitude of delays in maternal health service utilization and its associated factors among pregnant women in the Ilubabor zone during the COVID-19 pandemic.

Methods: A facility-based cross-sectional study was conducted among 402 pregnant women selected by systematic random sampling. Data were analyzed using IBM SPSS Statistics version 26. Descriptive and summary statistics were used to describe the study population. Bivariate and multivariable logistic regression analyses were performed to identify factors associated with the outcome variables. Adjusted odds ratio with respective 95% CI was used to report significant covariates.



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Results: A total of 402 pregnant women participated in this study. The median age of the respondents was 25 years (IQR = 8). On average, a woman stays 1.76 hours (SD = 1.2) to make a decision to seek care. The prevalence of first, second and third delay were 51%, 48%, and 33.3%, respectively. Being unmarried [AOR (95% CI), [0.145 (0.046–0.452)], being unemployed [AOR (95% CI)], [4.824 (1.685–13.814)], age [AOR (95% CI)], [0.227 (0.089–0.0579)], fear of COVID-19 [AOR (95% CI)], [1.112 (1.036–1.193)], urban residence [AOR (95% CI)], [0.517 (0.295–0.909)], and lack of birth preparedness [AOR (95% CI)], [6.526 (1.954–21.789)] were significantly associated with first delay. Being unmarried [AOR (95% CI)], [5.984 (2.930–12.223)], being unemployed [AOR (95% CI)], [26.978 (3.477–209.308)], and age [AOR (95% CI)], [0.438 (0.226–0.848)] were significantly associated with second delay. Having lengthy admission [AOR (95% CI)], [7.5 (4.053–13.878)] and non-spontaneous vaginal delivery [AOR (95% CI)], [1.471 (1.018–1.999)] were significantly associated with third delay. Conclusion: This study identified a significant proportion of mothers experiencing delays, although there were no data to suggest exacerbated delays in utilizing maternal health services due to fear of the COVID-19 pandemic. The proportion of maternal delay varies with different factors. Improving the decision-making capacity of women is, therefore, essential.

<https://doi.org/10.1371/JOURNAL.PONE.0268196>

10.1371/JOURNAL.PONE.0268196

W335412

Characteristics and treatment of hospitalized pregnant women with Coronavirus Disease 2019, COVID-19 (preprint)

Sekkarie, PhD Ahlia, Woodruff, PhD Rebecca, Whitaker, M. P. H. Michael, Kramer, Michael, Zapata, Lauren, Ellington, Sascha, Meaney-Delman, Dana, Pham, M. P. H. Huong, Patel, M. P. H. Mbbs Kadam, Taylor, Christopher, Chai, Kawasaki, M. P. H. Breanna, Meek, M. P. H. James, Openo, DrPH Kyle, Weigel, M. S. W. Andy, Leegwater, M. P. H. Lauren, Como-Sabetti, M. P. H. Kathryn, Ropp, Susan, Muse, M. P. H. Alison, Bennett, M. D. Nancy, Billing, M. P. H. Laurie, Sutton, Talbot, Hill, M. P. H. Mary, Havers, Team, Covid- N. E. T. Surveillance

Objective: Describe the vaccination status, treatment, and outcomes of hospitalized, symptomatic pregnant women with Coronavirus Disease 2019 (COVID-19) and estimate whether treatment differs by pregnancy status among treatment-eligible (i.e., requiring supplemental oxygen per National Institutes of Health guidelines) women.

Methods: During January–November 2021, the COVID-19-Associated Hospitalization Surveillance Network completed medical chart abstraction for a probability sample of 2,715 hospitalized women aged 15–49 years with laboratory-confirmed SARS-CoV-2 infection. Of these, 1,950 women had symptoms of COVID-19 upon admission; 336 were pregnant. We calculated weighted prevalence estimates of demographic and clinical characteristics, vaccination status, and outcomes among pregnant women with symptoms of COVID-19 upon admission. We used propensity score matching to estimate prevalence ratios (PR), and 95% confidence intervals (CI) of treatment-eligible patients who received remdesivir or systemic steroids by pregnancy status.

Results: Among 336 hospitalized pregnant women with symptomatic COVID-19, 39.6% were non-Hispanic Black, 24.8% were Hispanic or Latino, and 61.9% were aged 25–34 years. Among those with known COVID-19 vaccination status, 92.9% were unvaccinated. One-third (32.7%) were treatment-eligible. Among treatment-eligible pregnant women, 74.1% received systemic steroids and 61.4% received remdesivir. Among those that were no longer pregnant at discharge (n = 180), 5.4% had spontaneous abortions and 3.5% had stillbirths. Of the 159 live births, 29.0% were pre-term. Among



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a propensity score-matched cohort of treatment-eligible hospitalized women of reproductive age, pregnant women were less likely than non-pregnant women to receive remdesivir (PR 0.82, 95% CI 0.69–0.97) and systemic steroids (PR 0.80, 95% CI 0.73–0.87).

Conclusion: Most hospitalized pregnant patients with symptomatic COVID-19 were unvaccinated. Hospitalized pregnant patients were less likely to receive recommended remdesivir and systemic steroids compared to similar hospitalized non-pregnant women. Our results underscore the need to identify opportunities for improving COVID-19 vaccination, implementation of treatment of pregnant women, and the inclusion of pregnant women in clinical trials.

<https://doi.org/10.21203/rs.3.rs-1522990/v1>
10.21203/rs.3.rs-1522990/v1

W335200

Pilot study on the use of low molecular weight heparins in the prevention of thromboembolic disease during pregnancy and puerperium (preprint)

Paloma Anchústegui-Mendizábal, Patricia Anchústegui-Mendizábal, Laura Arechabala-Palacios, Laura Fernández-González, Clara García-Gil, Jesús Miguel Hernández-Guijo, Óscar Martínez-Pérez

A pregnant woman is 4 to 5 times more likely to suffer a thromboembolic event than a non-pregnant woman. Furthermore, an increase in these episodes has been observed in women infected with SARS-CoV-2. Consequently, the prophylactic prescription of low-molecular-weight heparins (LMWH) in pregnant women is undergoing an increase that has not been evaluated yet. The aim of this study was to determine the prevalence of LMWH prescription in pregnant women at the Hospital Universitario Puerta de Hierro Majadahonda (HUPHM), according to their level of risk and its variation due to SARS-CoV-2 infection. To answer this question, a retrospective cohort of 113 women who gave birth during the month of February at the HUPHM was designed. The level of individual risk of thromboembolism, according to the Royal College guidelines (37a), was calculated with an interview to complete a questionnaire and the analysis of their clinical records. 53.6% of the women were prescribed LMWH as indicated in the guidelines. This high prevalence is explained by the high age of the pregnant women (over 35 years), the wave of the omicron variant (December 2021) and a high rate of cesarean sections (25%). On the other hand, the percentage of patients with COVID-19 was 17.6% but only 53% of them had received LMWH. In conclusion, LMWH is a very common prescription in obstetrics, mostly during puerperium, and has become even more relevant due to the COVID-19 pandemic

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10.1101/2022.04.26.22274264

<M2022-03575>

Trends in Maternal Outcomes During the COVID-19 Pandemic in Alabama From 2016 to 2021.

Shukla VV, Rahman F, Shen X, et al (2022),
JAMA Network Open vol 5, no 4, April 2022, e222681

This cohort study assesses whether the COVID-19 pandemic is associated with an increase in the risk of maternal morbidity and mortality in Alabama from 2016 to 2021. (Author)

Full URL: <https://doi.org/10.1001/jamanetworkopen.2022.2681>

<M2022-03458>



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Systematic review and critical evaluation of quality of clinical practice guidelines on the management of SARS-CoV-2 infection in pregnancy.

Di Girolamo R, Khalil A, Rizzo G, et al (2022),

American Journal of Obstetrics & Gynecology MFM 2 May 2022, online. 100654

Objective: To systematically identify and critically assess the quality of clinical practice guidelines (CPGs) for the management of SARS-CoV-2 infection in pregnancy.

Data Source: Medline, Scopus and ISI Web of Science databases were searched until 15 th of February.

Study eligibility criteria: Inclusion criteria were CPGs on the management of SARS-CoV-2 infection in pregnancy. The risk of bias and quality assessment of the included CPGs were performed using “The Appraisal of Guidelines for REsearch and Evaluation (AGREE II)” tool, which is considered as the gold standard for CPG quality assessment. To define a CPG as of good quality we adopted the cut-off score according to Amer et al.: if the overall guideline score was >60%, CPGs was recommended.

Study appraisal and synthesis methods: The following clinical points related to the management of pregnant women with SARS-CoV-2 infection were addressed: criteria for maternal hospitalization, recommendations for follow-up fetal growth scan, specific recommendations against invasive procedures, management of labor, timing of delivery, postpartum care and vaccination strategy.

Results: Twenty-eight CPGs were included. All of them recommended hospitalization only for severe disease. Forty-six percent (6/13) of CPGs suggested a fetal growth scan after SARS-COV-2 infection while 23.1% (3/13) did not support this practice. Thromboprophylaxis with low molecular weight heparin (LMWH) was recommended in symptomatic women by 77.1% (7/9) of the CPGs. None of the CPGs recommended to administer corticosteroids only for the presence of SARS-CoV-2 infection in preterm gestation, unless specific obstetric indication exists. Elective induction of labor from 39 weeks of gestation was suggested by 18.1% (2/11) of the CPGs included in the present review, while 45.4% (5/11) did not recommend elective induction unless other obstetric indications co-existed. Twenty-seven percent (3/11) of the CPGs suggested shortening of the second stage of labor and active pushing was supported by 18.1% (2/11) of them. A general agreement was found among the CPGs in not recommending Cesarean Section (CS) only for the presence of maternal infection and recommending vaccine booster at least 6 months after the primary series of vaccination. The AGREE II standardized domain scores for the first overall assessment (OA1) of CPGs had a mean of 50% (SD±21.82%) and 9 CPGs scored more than 60%.

Conclusions: A significant heterogeneity was found in some major aspects of the main aspects of the management of SARS-CoV-2 infection in pregnancy reported by the published CPGs. (Author)

Full URL: <https://doi.org/10.1016/j.ajogmf.2022.100654>

<M2022-03545>

Letter to the Editor: COVID-19 Vaccination During Breastfeeding and Its Possible Negative Effect on Milk Production and Supply: A Preliminary Observation.

Lamers M, van der Mijle A, van Hunsel F, et al (2022),

Breastfeeding Medicine 14 April 2022, online

Correspondence piece aiming to provide systematically collected information on the incidence of decreased milk supply after COVID-19 vaccination. Results show that 10.3% of women reported reduced milk production and this mainly occurred after the Pfizer/BioNTech vaccine. (LDO)

Full URL: <https://doi.org/10.1089/bfm.2022.0057>