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Obstetrics

Racial and ethnic disparities in severity of COVID-19 disease in pregnancy in the United States

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Throughout the COVID-19 pandemic, limited racial and ethnic data have been published about the prevalence and severity of the disease in pregnant women. Ethical approval for this study was obtained from the Brigham and Women's Hospital Institutional Review Board. The present study reviewed the cases of women at an academic hospital-based obstetrics practice diagnosed with COVID-19 during pregnancy or within 8 weeks postpartum and abstracted data from electronic medical records including demographics, pregnancy, neonatal, and COVID-19 outcomes.

From March 14, 2020 to May 1, 2020, 44 pregnant or recently postpartum women were diagnosed with COVID-19 in our practice by positive polymerase-chain-reaction (PCR) testing for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The racial and ethnic disparities in COVID-19 outcomes are evident in disease incidence and severity. The majority of these patients belonged to racial or ethnic minority groups. Hispanic women represented 48% of the

cases and non-Hispanic Black women represented 34% of the cases. This is particularly notable given the clinic patient population is 30% non-Hispanic Black, 30% Hispanic, 20% non-Hispanic White, and 15% Asian. Of the nine women who required hospitalization for COVID-19, eight identified as non-Hispanic Black or Hispanic. Of the five patients with severe or critical disease,¹ two were non-Hispanic Black women and two were Hispanic women. Of the two pregnant women who required intensive care unit (ICU) admission and mechanical ventilation, one was non-Hispanic Black and the second was Hispanic (Table 1). These disparities in COVID-19 disease severity resulted in a total of 25 inpatient days for the five Hispanic women admitted for COVID-19, and 31 inpatient days for the three non-Hispanic Black women admitted for severe disease. For the two patients who were critically ill, they together experienced 14 days in the ICU and 25 days of mechanical ventilation.

TABLE 1 Demographic and clinical characteristics of pregnant and recently postpartum women with COVID-19, stratified by race/ethnicity.

	All N=44	Hispanic N=21	Non-Hispanic Black N=15	Non-Hispanic White/Asian/Other N=8
General characteristics				
Median age (IQR)	28.5 (26-34.25)	26 (25-29)	34 (30-38.5)	29.5 (28-34.25)
Nulliparous no. (%)	20 (45)	10 (48)	5 (33)	5 (63)
Median gestational age at diagnosis in completed weeks (IQR)	30 (19-35.5)	25 (19-36)	32 (27.25-34)	26 (9.75-31.75)
Non-English preferred language	17 (39)	15 (71)	2 (13)	0 (0)
Past medical history, no. (%)				
Chronic lung disease	6 (14)	1 (5)	5 (33)	0 (0)
Hypertension	5 (11)	0 (0)	4 (27)	1 (13)
Diabetes	6 (14)	2 (10)	3 (20)	1 (13)
Pre-gravid obesity	19 (43)	5 (24)	10 (66)	4 (50)
None of the above conditions	29 (66)	18 (86)	5 (33)	6 (75)
COVID-19 disease				
Non-severe COVID-19 disease ^a	39 (89)	19 (90)	13 (87)	7 (88)
Severe or critical COVID-19 disease	5 (11)	2 (10)	2 (13)	1 (13)
Hospitalized	9 (20)	5 (24)	3 (20)	1 (13)
Median inpatient length of stay, days (IQR)	6 (2-8)	3 (1-8)	8 (5-14.5)	6
Total number of inpatient days	62	25	31	6
Mean intensive care unit length of stay, days (N=2)	11	8	14	0
Mean days of mechanical ventilation (N=2)	8.5	6	11	0
Receipt of trial therapy (remdesivir or hydroxychloroquine)	4 (44)	2 (9)	2 (13)	0
Pregnancy outcome				
Pregnancy ongoing	31 (70)	16 (76)	8 (53)	7 (88)
Abortion	0 (0)	0 (0)	0 (0)	0 (0)
Deliveries	13	5	7	1
Preterm delivery	3 (23)	0 (0)	3 (43)	0 (0)
Term delivery	10 (77)	5 (100)	4 (57)	1 (100)
Cesarean delivery	6 (46)	1 (20)	4 (57)	1 (100)
Spontaneous vaginal delivery	6 (46)	3 (60)	3 (43)	0 (0)
Operative vaginal delivery	1 (8)	1 (20)	0 (0)	0 (0)
Indication for delivery				
Spontaneous labor, term	2 (15)	2 (40)	0 (0)	0 (0)
Elective	4 (27)	2 (40)	2 (29)	0 (0)
Maternal condition (e.g. diabetes, hypertensive disease of pregnancy)	3 (23)	0 (0)	2 (29)	1 (100)
Preterm prelabor rupture of membranes/preterm labor	3 (23)	0 (0)	3 (43)	0 (0)
Other	1 (8)	1 (20)	0 (0)	0 (0)
Neonatal outcome				
Median 1 minute Apgar	8	8	8	8
Median 5 minute Apgar	9	9	9	9
Neonatal ICU admission, no. (%)	8 (62)	3 (60)	4 (57)	1 (100)
COVID-19 status of infant				
Negative ^b	9 (82)	4 (100)	4 (67)	1 (100)

(Continues)

TABLE 1 (Continued)

	All N=44	Hispanic N=21	Non-Hispanic Black N=15	Non-Hispanic White/Asian/Other N=8
Positive ^b	0 (0)	0 (0)	0 (0)	0 (0)
Testing declined ^b	2 (18)	0 (0)	2 (33)	0 (0)
N/A (diagnosed postpartum)	2	1	1	0
Postpartum care				
Infant separation ^b	9 (82)	4 (100)	4 (67)	1 (100)
Breastfeeding	2 (18)	4 (80)	4 (57)	1 (100)
Social determinants of health				
Housing insecurity	6 (14)	5 (24)	1 (7)	0 (0)

^aNon-severe = asymptomatic, mild, moderate.

^bDoes not include patients diagnosed postpartum.

These findings reflect the health consequences of the social, environmental, and structural effects of racism in the United States including differences in the prevalence of underlying chronic conditions and the disproportional impact of socioeconomic determinants of health. Of the non-Hispanic Black women with COVID-19, 67% had at least one of the following diagnoses: chronic lung disease, diabetes, hypertension, or obesity, which may have contributed to increased vulnerability to COVID-19. Almost one quarter of the Hispanic women with COVID-19 were experiencing housing insecurity. Ultimately, these preliminary data underscore the importance of collecting and reporting data based on race and ethnicity to better understand the impact of the pandemic in the United States and to further efforts to promote health equity.

AUTHOR CONTRIBUTIONS

Each author participated actively in drafting sections of the manuscript, editing, and approving the final, submitted version.

CONFLICTS OF INTEREST

The authors have no conflicts of interest.

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Obstetrics

Pre-gestational diabetes during the COVID-19 pandemic in Bergamo, Italy

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