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Preprocedural asymptomatic coronavirus disease 2019 cases in obstetrical and surgical units

OBJECTIVE: Asymptomatic severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infections remain a challenge, accounting for nearly half of all the infections.[1] The infectivity of asymptomatic patients can extend to more than 14 days, and samples isolated from their respiratory tracts have similar viral loads as those of symptomatic patients.[1,2] To mitigate the surgical risk for patients and exposure of healthcare workers (HCW), universal testing for SARS-CoV-2 has been suggested for all patients before planned procedures,[3] including delivery,[4] regardless of the presence of symptoms. Preprocedural asymptomatic infection (PAI) rates among obstetrical patients have been reported to be as high as 14%,[4] but the PAI rates in the general surgical population are unknown. We sought to compare the SARS-CoV-2 PAI rates between the obstetrical unit (OU) and surgical units (SUs) in 1 urban tertiary center.

STUDY DESIGN: We conducted a retrospective cohort study on the outcomes of universal preprocedural SARS-CoV-2 tests performed before all surgeries or deliveries at the Barnes-Jewish Hospital from May 28 to July 22, 2020, after the resumption of elective procedures. The study was deemed exempt because it was recognized as a quality improvement initiative. The primary outcome was the rate of PAI with SARS-CoV-2, which was compared between an 18-bed OU and the SUs composed of 72 rooms. All the positive cases underwent a chart review to confirm the asymptomatic presentation. Multivariable logistic regressions were used to adjust for confounders, including age and race. Statistical analyses were conducted using R (version 4.0.2; https://www.R-project.org/).

RESULTS: A total of 5543 preprocedural tests were performed: 532 (9.7%) were from the OU and 5011 (90.4%) were from the SUs (Table). The obstetrical patients were younger (median age, 29.0 vs 56.0; $P<.001$), with a greater proportion of females (100% vs 50.4%; $P<.001$) and patients identifying as black (40.4% vs 22.7%; $P<.001$) or Hispanic (9.4% vs 1.5%; $P<.001$) when compared with the patients from the SUs. Overall, there were 39 (0.7%) cases of PAI (25 of 532 [4.7%] from the OU vs 14 of 5011 [0.3%] from the SUs; $P<.001$). After adjusting for age and race, the obstetrical patients had significantly higher odds of PAI with SARS-CoV-2 compared with the surgical patients (adjusted odds ratio [aOR], 4.7; 95% confidence interval [CI], 2.3−10.6). After excluding the male patients, the odds of PAI remained significantly higher in the OU patients (aOR, 9.6; 95% CI, 92.8−48.3) (Table).

CONCLUSION: The SARS-CoV-2 PAI rate is 15.7 times higher in the OU (4.7%) than in the SU (0.3%) in 1 hospital. The significant difference persists after adjusting for age, race, and sex. As hospitals resume their normal surgical volume and enact universal preprocedural testing policies, the testing capacity remains limited, and rationing of the supplies is necessary. Our results emphasize the need to prioritize testing and personal protective equipment in the OUs in which higher rates of asymptomatic infection increase the potential of spread, particularly during the second stage of labor with prolonged HCW exposure in an aerosol-heavy environment.[4] Whether the different background characteristics of obstetrical and surgical patients can fully account for the discordance in PAI rates or whether pregnancy-induced immunomodulation increases the likelihood of asymptomatic presentation of infection is unknown and remain important questions that require further investigation.

Our study is limited by generalizability owing to sampling at only 1 hospital. However, the substantial difference in PAI rates between the OU and SUs underscores the importance of surveillance in populations that are at an increased risk for the disease. Focused SARS-CoV-2 obstetrical studies could generate valuable information regarding asymptomatic infection, which remains a poorly understood but critically important component of the pandemic. ■

TABLE

Background characteristics of the patients who underwent preprocedural testing for SARS-CoV-2 and a comparison of the preprocedural asymptomatic positive results between the obstetrical and surgical units

Baseline characteristics of the patients who underwent universal preprocedural testing

Background characteristics	Obstetrical unit (n=532)	Surgical units (n=5011)	*P* value
Age, y			
Median (SD)	29.0 (6.0)	56.0 (18.1)	<.001[a]
<18	6 (1.1)	41 (8.2)	<.001[a]
18–45	525 (98.7)	1349 (26.9)	
>45	1 (0.2)	3621 (72.2)	
Female	532 (100.0)	2524 (50.4)	<.001[a]
Race			<.001[a]
White	245 (46.2)	3708 (74.0)	
Black or African American	214 (40.4)	1136 (22.7)	
Asian	13 (2.4)	47 (0.9)	
Pacific Islander	3 (0.6)	4 (0.1)	
American Indian or Alaska Native	1 (0.2)	4 (0.1)	
Hispanic	50 (9.4)	73 (1.5)	
Unable to answer	3 (0.6)	21 (0.4)	
Declined	3 (0.6)	18 (0.4)	
Asymptomatic positive results following universal preprocedural testing			
Overall asymptomatic positive cases	25 (4.7)	14 (0.3)	<.001[a]
OR (95% CI)	13.2 (6.9–25.2)	—	
aOR[b] (95% CI)	4.7 (2.3–10.6)	—	
Age, y			
Median (SD)	30.0 (5.9)	38.0 (19.8)	<.001[a]
<18	1 (4.0)	1 (7.1)	.006[a]
18–45	24 (96.0)	9 (64.3)	
>45	0 (0)	4 (28.6)	
Female	25 (100)	5 (36)	<.001[a]
Race			
White	0 (0.0)	4 (28.6)	.036[a]
Black or African American	2 (8.0)	9 (64.3)	
Asian	10 (40.0)	0 (0.0)	
Pacific Islander	0 (0.0)	0 (0.0)	
American Indian or Alaska Native	1 (4.0)	0 (0.0)	
Hispanic	0 (0.0)	1 (7.1)	
Unable to answer	11 (44.0)	0 (0.0)	
Declines	1 (4.0)	0 (0.0)	

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(continued)

TABLE
Background characteristics of the patients who underwent preprocedural testing for SARS-CoV-2 and a comparison of the preprocedural asymptomatic positive results between the obstetrical and surgical units *(continued)*

Baseline characteristics of the patients who underwent universal preprocedural testing

Background characteristics	Obstetrical unit (n=532)	Surgical units (n=5011)	*P* value
Surgical service			<.001[a]
Obstetrics	25 (100.0)		
Orthopedic surgery		7 (50.0)	
Ophthalmology		2 (14.2)	
Acute critical care surgery		4 (28.6)	
Minimally invasive surgery		1 (7.1)	
Asymptomatic positive, men excluded	25 (4.7)	5 (0.1)	<.001[a]
OR (95% CI)	24.8 (9.4—65.1)	—	
aOR[b] (95% CI)	9.6 (2.8—48.3)	—	

Data are presented as number (percentage) unless noted otherwise.

aOR, adjusted odds ratio; *CI,* confidence interval; *OR,* odds ratio; *SARS-CoV-2,* severe acute respiratory syndrome coronavirus 2; *SD,* standard deviation.

[a] Statistically significant result; [b] Adjusted for age (as categorical variable) and race.

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Pregnancy as a "golden opportunity" for patient activation and engagement

OBJECTIVE: Pregnancy represents a period during which uptake of information and engagement in care are critical. It is often considered a window of opportunity to improve health-related behaviors; however, limited data are available to support the concept of increased engagement during pregnancy. Patient activation is a term used to describe the concept of patient engagement and confidence in managing one's own healthcare; activated patients, correspondingly possess the skills, knowledge, and motivation to participate in their own healthcare.[1–3] Increased patient activation is associated with better adherence to treatment and less frequent hospitalizations.[4] Although differential activation has