

Effect of delayed obstetric labor care during the COVID-19 pandemic on perinatal outcomes

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Since the beginning of the COVID-19 quarantine in São Paulo, Brazil, our institution has noticed that some pregnant women, particularly those that were recommended elective cesarean sections for reasons such as repeated cesarean deliveries or abnormal fetal presentation, were admitted to São Paulo Hospital in the second stage of labor and then went on to have vaginal deliveries (Table 1). Therefore, we conducted a comparative cohort study between March 11 and June 11, 2019 and March 11 and June 11, 2020 in order to evaluate whether the quarantine period led to pregnant women with spontaneous labor arriving at our hospital in a more advanced phase of labor. The Institutional Review Board of UNIFESP provided ethical approval for this study (No. 33734620.7.0000.5505).

In 2019 there were 143 deliveries during the period of study, 41 of which were initiated by spontaneous labor. By contrast, during the same period in 2020, there were 122 deliveries and 40 patients arrived at the hospital in labor. Delivery within 3 hours of hospital admission occurred in 26.8% (11/41) and 40% (16/40) of cases in 2019 and 2020, respectively. Gestational age was over 37 weeks in 81% of patients in both years. Paradoxically, in 2020 there were more nulliparous women (9% versus 12.5%), fewer women with two or more previous births (54.5% vs 43.7%), and a lower percentage of newborns weighing less than 2500 g (18.1% vs 12.5%). Most of the patients had received prenatal care at the institution (54.5% vs 75%). One potential explanation for the increase in deliveries within 3 hours in 2020 might be related to the reduction of public transport during the pandemic, given that most of the patients reside far from the hospital (median 14 km). Moreover, patients are reluctant to attend treatment at hospitals due to fear of exposure to SARS-CoV-2.

This phenomenon appears to occur worldwide—it has been reported that delayed care in 12 children in Italy resulted in four deaths and delayed care among patients with ST-segment-elevation myocardial infarction.^{1–3} Regarding pregnancy, it has been reported that one third of pregnant women started working from home due to fear of being infected.⁴

Based on this, our preliminary perception is that our population also feared COVID-19 infection. As a result, these patients underwent initial labor at home until their concerns about exposure were outweighed by their concerns regarding the wellbeing of their babies. Although our results are limited due to the small sample size, the fact that pregnant women arrived at the hospital in advanced stages of labor with no adverse maternal and neonatal outcome leads us to think that patients should be encouraged to go to the hospital at the active stage of labor under a shared decision model.

AUTHOR CONTRIBUTIONS

SYS, CAFG, RM, and ESVA equally contributed to the conception and design of the study, and analysis and interpretation of data. LRM, FPD, MNA, PMCS, and ACS contributed to the collection and analysis of data. ACM and PMCS reviewed the literature. SYS, ACS, and LRM wrote the first draft of the paper. All authors reviewed and approved the final version of the manuscript.

CONFLICTS OF INTEREST

The authors have no conflicts of interest.

TABLE 1 Characteristics of pregnant women admitted at Sao Paulo Hospital (SPH) in spontaneous labor from 11 March, 2019–11 June, 2019, and from 11 March, 2020–11 June, 2020^a

Year, n	0-3 h ^b		>3h ^b	
	2019, 11 (26.8)	2020, 16 (40)	2019, 30 (73)	2020, 24 (60)
Maternal age				
<20	0	1 (6.2)	3 (10)	0
20 - 34	8 (72.7)	10 (62.5)	21 (70)	19 (79.1)
≥35	3 (27.2)	5 (31.2)	6 (20)	5 (20.8)
Mean (years)	32.45	31.75	28.37	28.63
Robson				
1 and 3	7 (63.6)	9 (56.2)	24 (80)	15 (62.5)
5	3 (27.2)	3 (18.7)	3 (10)	6 (25)
6 to 10	1 (9)	4 (25)	3 (10)	3 (12.5)
Gestational age				
<37	2 (18.1)	3 (18.7)	4 (13.3)	21 (87.5)
≥37	9 (81.8)	13 (81.2)	26 (86.6)	3 (12.5)
Parity				
Nulliparous	1 (9)	2 (12.5)	12 (40)	11 (45.8)
1	4 (36.4)	7 (43.7)	8 (26.6)	10 (41.6)
≥2	6 (54.5)	7 (43.7)	10 (33.3)	3 (12.5)
Delivery type				
Vaginal	10 (90.9)	15 (93.7)	21 (70)	18 (75)
Forceps	0	0	0	1 (4.1)
Cesarean section	1 (9)	1 (6.3)	9 (30)	5 (20.8)
Newborn's weight (g)				
< 2500	2 (18.1)	2 (12.5)	1 (3.3)	0
2500-<4000	8 (72.7)	14 (87.5)	28 (93.3)	24 (100)
≥4000	1 (9)	0	1 (3.3)	0
Perineal laceration				
No	3 (30)	7 (43)	9 (30)	3 (12.5)
1°	4 (40)	6 (37.5)	4 (13)	9 (37.5)
2°	2 (20)	2 (12.5)	7 (23)	7 (29)
3°	1 (10)	0	1 (3)	0
Prenatal care				
None	2 (18.1)	1 (6.2)	5 (16.6)	0
Elsewhere	3 (27.3)	3 (18.7)	1 (3.3)	1 (4.1)
SPH	6 (54.5)	12 (75)	24 (80)	23 (95.8)
Apgar score				
<7	2 (18.1)	1 (6.25)	0	1 (4.1)
≥7	9 (81.8)	15 (93.7)	30 (100)	23 (95.8)

Abbreviation: SPH, São Paulo Hospital.

^aValues shown as number (percentage.).^bTime between the arrival at the hospital and the delivery.

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Obstetrics

Adapting antenatal care in a rural LMIC during COVID-19: A low literacy checklist to mitigate risk for community health workers

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The COVID-19 pandemic is challenging health systems across the world. The potential for devastating consequences in resource-limited low- and middle-income countries (LMICs) is just beginning to be understood.¹ In the majority of LMICs, maternal healthcare is focused outside a health center through the use of community health workers and birth attendants. These essential workers provide the majority of maternal health care around the globe and are ill prepared for the highly transmissible nature of this novel virus and its consequences for their communities.² Little attention has been focused on their training and responsiveness during this pandemic.

Since the emergence of COVID-19, the Guatemala Ministry of Health (MOH) has reported a decreased uptake of antenatal care (ANC) at clinics and health posts in Sololá, a mainly indigenous region in the Western Highlands of Guatemala, due to both fear of interpersonal contact and limited availability of MOH staff due to COVID-19

infection. This is alarming given that Mayan women living in rural Guatemala have a maternal mortality rate double that of their non-Mayan counterparts (163 per 100 000 compared to 78 per 100 000).³

Saving Mothers Guatemala has piloted an ANC protocol aimed at safe maternal antenatal care for low-literacy community health-care workers during the COVID-19 pandemic (Fig. 1). A total of eight traditional birth attendants skilled in ANC delivery were trained in the protocol that was adapted from WHO, CDC, ACOG, and Guatemalan national guidelines and applied to this low-resource setting in Guatemala.

Implementation of the training was feasible due to: (1) an existing long-standing collaboration between the municipal branch of the MOH in Santiago Atitlan and Saving Mothers Guatemala, a local NGO with vast experience in training traditional birth attendants in basic ANC⁴; and (2) the acceptance by the community of receiving essential