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Correspondence

The effect of COVID-19 on general anaesthesia rates for caesarean section



National obstetric guidelines produced during the COVID-19 pandemic recommend avoiding general anaesthesia (GA) unless absolutely necessary.¹ We were interested to read correspondence from Bruce-Hickman et al. and Patkar-Kattimani et al. describing a reduction in the use of GA for caesarean section during the first wave of the COVID-19 pandemic.^{2,3} These findings are consistent with those of a larger, observational study by Bhatia et al. and provide valuable information to obstetric practitioners.⁴ The use of regional anaesthesia is likely to be of benefit for the mother but, as highlighted by Russell and Lucas, there are potential implications for neonatal wellbeing if delivery is delayed secondary to difficulties in siting regional anaesthesia.^{5,6} This is particularly prescient in the most urgent (category-1) caesarean deliveries, at which there is immediate threat to fetal or maternal life.⁷ Further data are required to describe any associations of change in anaesthetic practice with decision-to-delivery intervals and neonatal outcomes.

We report data from our tertiary referral hospital (approximately 5500 deliveries per year, caesarean section rate of 39%) for category-1 caesarean sections and rates of GA, decision-to-delivery times, and neonatal outcomes, before and during the first wave of the COVID-19 pandemic.

Caldicott Guardian approval was obtained and ethical approval was deemed unnecessary by the West of Scotland Ethics Service. Data were collected prospectively for all category-1 caesarean sections in the two-month period from March 27 to May 27, 2020, during which anaesthetic care was solely consultant-delivered and a policy of administering GA only for 'threat to maternal life' was implemented. Obstetric practice included early recourse to caesarean section in the presence of cardiotocographic (CTG) concerns, avoidance of fetal

blood sampling, avoidance of artificial rupture of membranes in women with CTG concerns, pro-active use of intra-uterine resuscitation, and senior decision-making. We compared these data with retrospective data from the preceding 13-month period (March 1, 2019 to March 26, 2020) which represented a period of standard care delivered by a mixture of trainees and consultants, and in which additional personal protective equipment was not required or additional restrictions on GA applied. Analyses were restricted to livebirths. Data were summarised using mean (standard deviation), median [inter quartile range] and count (%), with differences between groups tested using Pearson exact and Wilcoxon rank sum tests depending on the distribution of the variables.

One hundred and twenty-two patients delivered by category-1 caesarean section in the control cohort and 18 patients in the COVID-19 cohort. There were three cases with missing data in the control cohort (n=119). General anaesthesia was used in 48/119 cases (40.3%) among the controls and in 0/18 patients in the COVID-19 cohort. Spinal anaesthesia rates increased from 51/119 patients (42.9%) to 16/18 patients (88.9%) in the COVID-19 cohort. Decision-to-delivery intervals did not differ between cohorts (median time 25 [IQR 16–31] min vs 27.5 [IQR 19.8–33] min, respectively). There were no differences between cohorts in neonatal outcomes (neonatal resuscitation, Apgar score <7 at 5 min or admission to a neonatal unit, Table 1).

In this observational study, we report a substantial reduction in the requirement for GA in category-1 cesarean sections during the first wave of the COVID-19 pandemic compared with a historical control period. Decision-to-delivery intervals and neonatal outcomes were not found to differ. Limitations of our data include its retrospective nature, the small numbers of cases from a single centre, and a predominantly white British ethnic group. The additional consultant-delivered anaesthetic cover is likely to have influenced these results and it is not known whether the findings would be reproducible if there were the

Table 1
Event rates for primary and secondary outcomes comparing control and COVID-19 period

Measure	n	Control cohort (n=122)	COVID-19 cohort (n=18)	P-value
Mode of anaesthesia, n (%):	137			<0.01 [§]
GA		48/119 (40.3%)	0/18 (0%)	
Epidural top-up		19/119 (16.0%)	2/18 (11.1%)	
Spinal		51/119 (42.9%)	16/18 (88.9%)	
Spinal to GA conversion		1/119 (0.8%)	0/19 (0%)	
RA utilisation, n (%):	137	70/119 (58.8%)	18/18 (100%)	<0.01 [§]
Overall decision-to-delivery interval, median [IQR], min	135	25 [16–31]	27.5 [19.8–33.0]	0.42 [†]
Overall theatre-to-delivery interval, median [IQR], min	134	18 [12–24]	20.0 [14.7–23.3]	0.47 [†]
Neonatal resuscitation, n (%)	140	37 (30.3%)	4 (22.2%)	0.48 [§]
Apgar score <7 at 5 min, n (%)	130	10 (8.8%)	1 (5.8%)	0.68 [§]
Missing data, n		9	1	
Neonatal unit admission, n (%)	140	25 (20.4%)	6 (33.3%)	0.22 [§]

GA: general anaesthesia. RA: regional anaesthesia.

[§]denotes tests performed using Pearson's exact statistic, and [†] denotes tests performed using Wilcoxon rank sum statistic.

standard overnight cover of a single anaesthetic registrar. We hope that the data provide some useful preliminary information and look forward to further results from the larger dataset of Bhatia et al.

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