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

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Dear Editor,

National obstetric guidelines produced during the COVID-19 pandemic recommend avoiding GA unless absolutely necessary.[1] We were interested to read correspondence from Bruce-Hickman and colleagues and Patkar-Kattimani and colleagues describing a reduction in the use of general anaesthesia (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 and colleagues 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 Lucas and Russell, 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, where 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 for category-1 caesarean sections on; rates of GA, decision-to-delivery times, and neonatal outcomes from our tertiary referral hospital (approximately 5500 deliveries per year, caesarean section rate of 39%) 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 27/3/20 to 27/5/20 where: anaesthetic care was solely consultant-delivered and a policy of administering GAs only for threat to maternal life implemented. Obstetric practice included: early recourse to caesarean section if cartiotocograph (CTG) concerns, avoidance of fetal blood sampling, avoidance of artificial rupture of membranes in women with CTG concerns, proactive use of intra-uterine resuscitation, and senior decision-making. We compared these to retrospective data from the preceding 13-month period (1st March 2019 to 26th March 2020) representing standard care delivered by a mixture of trainees and consultants, where additional PPE was not required, and without additional restrictions on GA. 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 testing depending on the distribution of the variables.

122 patients delivered by category-1 caesarean section in the control, and eighteen patients in the COVID-19 cohort. There were 3 cases with missing data in the control cohort (n=119). General anaesthesia was utilized in 48/119 cases (40.3%) in 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 group. Decision-to-delivery intervals did not differ between cohorts (median time 25 mins [IQR 16-31 mins] versus 27.5 mins [IQR 19.8-33 mins] respectively. There was no difference in neonatal outcomes (neonatal resuscitation, Apgar score < 7 at 5 minutes, or admission to neonatal unit) between groups (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 to a historical control period. Decision-to-delivery intervals and neonatal outcomes were not found to differ. Limitations of our data include; its retrospective nature, small numbers of cases from a single centre, a predominantly white British ethnic group, and non-causal analyses. The additional consultant-delivered anaesthetic cover is likely to have influenced these results and it is not known whether these results would be reproducible with the standard overnight cover of one anaesthetic registrar.

However, we hope that the data presented provide some useful preliminary information and look forward to further results from the larger dataset of Bhatia and colleagues.

Conflicts of interest

Nil to declare

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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 to 31]	27.5 [19.8 to 33.0]	0.42†
Overall Theatre-to-delivery interval, median [IQR], min	134	18 [12 to 24]	20.0 [14.7 to 23.3]	0.47†
Neonatal resuscitation, n (%)	140	37 (30.3%)	4 (22.2%)	0.48§
Apgar < 7 at 5 min, n (%)	130	10 (8.8%)	1 (5.8%)	0.68§
Missing Data, n		9	1	
Admission neonatal unit, n (%)	140	25 (20.4%)	6 (33.3%)	0.22§

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

Abbreviations: RA, Regional Anaesthesia; GA, General Anaesthesia.

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