Paediatric videolaryngoscopy during the COVID-19 pandemic

K Donaldson, N Willis
Royal Hospital for Children, Glasgow, UK

NHS Greater Glasgow and Clyde

Introduction

The COVID-19 pandemic has brought videolaryngoscopy (VL) increasingly into mainstream anaesthetic practice. Consensus guidelines recommend the use of VL as first-line choice for all intubations [1]. The many benefits of VL, particularly those relating to human factors, have become increasingly relevant when dealing with airway management during the pandemic [2]. In paediatric practice VL has been shown to be the most effective means of achieving first time intubation success [3]. We set to evaluate the impact of the COVID-19 pandemic on use of VL within our institution.

Methods

Local retrospective data collection was performed to cover a total period of 14 months; seven months pre-COVID-19 lockdown (22/08/19- 22/03/20), and seven months during-COVID-19 (23/03/20 – 23/10/20), using our sterilisation logbook and 'Clinical Portal' patient record system. Data collected includes who is using VL, reasons for choice, patient demographics and laryngoscope blade used. Stated figures relate to Storz C-MAC Miller 0, C-MAC Miller 1 and paediatric d-Blade laryngoscope blades. Whilst McGrath MAC VL is also available at our institution we have no way to retrospectively collect data on use.

Results

There were 21 uses in 7525 cases (0.3%) pre-COVID-19 and 30 uses in 3840 cases (0.8%) during COVID-19.

VL was used first-line by 11/21 (52%) consultants pre-COVID, compared with 19/23 (82%) post-COVID on at least one occasion. It was only used once without the presence of a consultant anaesthetist by a training grade registrar.

Figure 1: Percentage of consultants choosing first-line VL

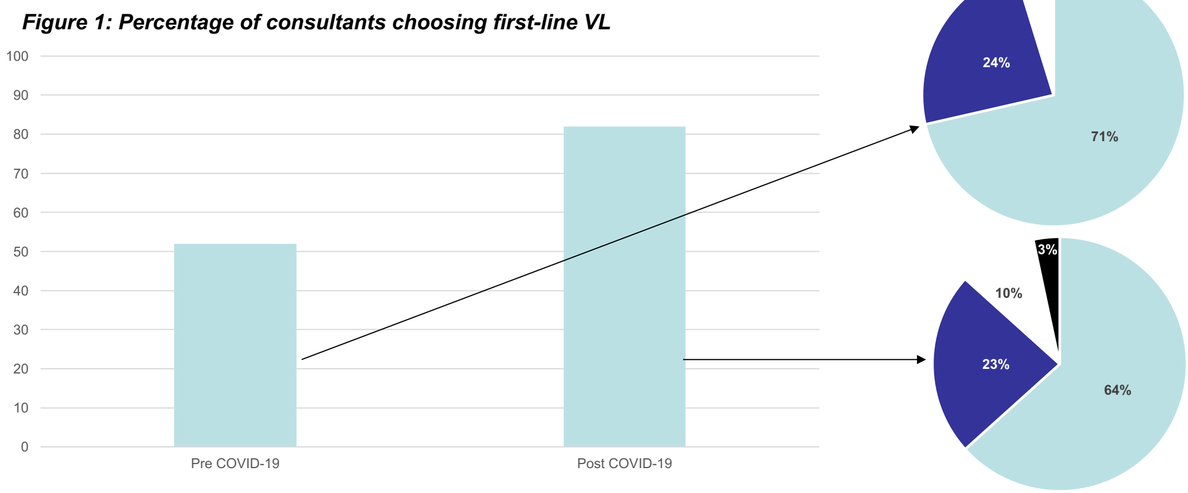
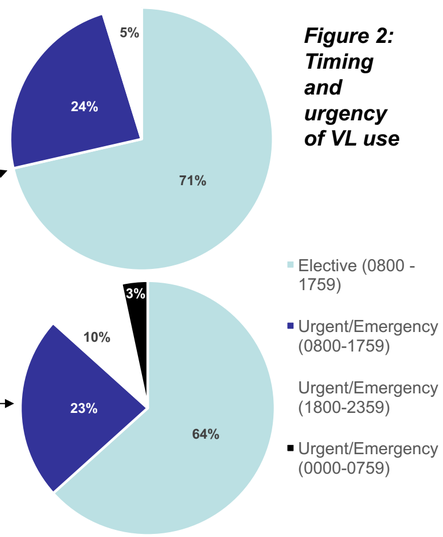


Figure 2: Timing and urgency of VL use



The most common documented reason for choosing VL was predicted/previous difficult airway in 52% pre-COVID and 50% post-COVID. Reason for use was not documented in the remaining 48% pre-COVID, and 46.6% post-COVID (one case came to theatre intubated and VL was prepared as a precautionary step but not used).

In both groups VL was used most frequently in the under-one-year patient population (67% and 87% respectively) and more in patients with increased comorbidity: ≥ASA 3 represented 48% and 60% respectively. Miller 0/1 blades were used fittingly in under 1-year olds, with dBlade use confined to children >1year.

Table 1: Patient demographics for VL use

PATIENT DEMOGRAPHICS	PRE-COVID	POST-COVID
AGE 0-1M	7/21 (33.5%)	15/30 (50%)
AGE 1M-1Y	7/21 (33.5%)	11/30 (37%)
AGE 1Y-5Y	3/21 (14%)	2/30 (6.5%)
AGE 6-15Y	4/21 (19%)	2/30 (6.5%)
ASA 1	3/21 (14%)	3/30 (10%)
ASA 2	8/21 (38%)	9/30 (30%)
ASA 3	10/21 (48%)	15/30 (50%)
ASA 4	0	3/30 (10%)

In both groups the most common surgical speciality was general: 9/21 (43%) pre-COVID, 15/30 (50%) post-COVID. This likely reflects overall numbers of general cases being highest: 1394/7525 (18.5%) pre-COVID, and 770/3840 (10.2%) post-COVID.

Discussion

Although our data set is of limited size and reflects our department only, it does suggest an increase in use of first-line VL since the beginning of the COVID-19 pandemic, with an increase in the size of the consultant group who routinely choose to use VL first-line. Whilst reasons for choosing VL were poorly documented, we might hypothesise that at least some of this increase in use reflects current consensus guidelines [1]. This is backed up by our institution's recent nationwide survey where anaesthetists within Scottish Paediatric Anaesthesia Network (SPAN) confirmed they are more likely to use VL routinely since the pandemic began [4].

Of interest, VL use was higher for more co-morbid patients, recognising a need to optimise the chance of first-pass success in this group. Age findings likely reflect device availability rather than factors relating to airway difficulty, as well as accounting for consultant presence and apparent lack of use of VL by trainees.

Conclusion

Given the risk of future viral outbreaks, the importance of lessons learned from the COVID-19 pandemic cannot be overstated. The RCoA has already recommended incorporation of VL into routine airway training for novice anaesthetists [5]. Paediatric anaesthetic training should follow suit with formal integration of VL into the curriculum for paediatric anaesthesia. This will bring paediatric anaesthesia to the same standard expected elsewhere.

References

1. Cook T, El-Boghdadly K, McGuire B *et al*. Consensus guidelines for managing the airway in patients with COVID-19. *Anaesthesia*. 2020. 75(6):785–799.
2. Yek J.L.J. Perioperative considerations for COVID-19 patients: lessons learnt from the pandemic. *Korean J Anesthesiology*. 2020
3. Peyton J, Park R, Staffa S *et al*. A comparison of videolaryngoscopy using standard blades or non-standard blades in children in the Paediatric Difficult Intubation Registry. *British Journal of Anaesthesia*, 2021. 126(1): 331-339.
4. Paediatric Videolaryngoscopy. McKevitt, Willis. RHC, Glasgow
5. RCOA Guidance for Novice Airway Training. 04/08/2020.