Outcomes in children undergoing general anaesthesia at Nottingham Children's Hospital during the COVID-19 pandemic

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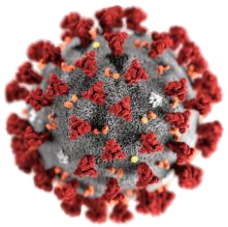


Introduction

- During the first wave of the COVID-19 pandemic, surgical services in our centre were drastically reduced from 60 to 4 half-day sessions per week in children's theatres.
- Children appear to have a milder course of COVID related illness to adults but the morbidity associated with a post inflammatory syndrome means there is a need to balance sequalae of peri-operative COVID infection against risk from delaying procedures. [1,2,3,4]
- This was a period of dynamic change in national and local guidance with regards to shielding and peri-operative testing.
- We wanted to assess prevalence of COVID positive tests and the impact it has on patient morbidity and outcome.

Methods

- Retrospective audit of all paediatric patients undergoing elective and emergency GA in theatres and MRI between 23rd March and 8th June 2020 during which there was changing shielding and testing advice.
- Elective cases listed via prioritisation group
- Data collected: age, sex, PMH, ASA, procedure, shielding advice, COVID swab results, complications, length of stay, readmissions.
- Priority level for elective cases, modified CEPOD classification (U code) for emergencies:
  - Priority level: 1a <24h, 1b <72h, 2a <4 weeks, 2b 4-10 weeks, 3 >10 weeks
    U code: U1 = within 1h, U3 = within 3h etc.

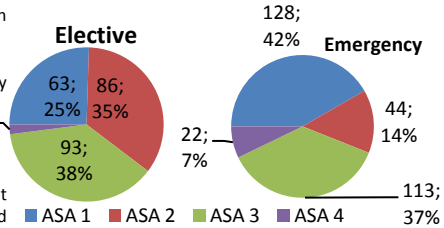
Results

- 579 procedures performed on 514 patients
- Larger proportion of ASA 1 in emergency cohort, majority of elective cohort ASA 2 & 3
- Shielding advice according to national guidance:
  - 48 cases (17.65%): no shielding period
  - 112 cases (41.18%): 7-days shielding
  - 112 cases (41.18%): 14-days shielding
  - Shielding not possible for emergency cases
- 90.3% electives performed within recommended time; 94.79% emergencies performed on proposed date.
- 90.32% elective and 78.4% emergency cases were within their predicted length of stay
- 2.01% elective day case admission rate, 17.3% emergency day case admission rate.
- 7.7% complication rate across both cohorts:
  - 5.15% elective, 10.1% emergency
  - No complications related to COVID-19 infection
- 14 elective patients (5.15%) had complication identified at planned follow up, 13 cases (4.78%) required an unplanned readmission, none related to COVID
- 39 emergency cohort patients (12.7%) required unplanned admission, none related to COVID -19
- COVID swabs sent in the 7-day pre-procedure period for 88 elective cases (32.35%) and for 116 emergency cases (37.79%).
- 47 elective cases (17.28%) and 61 emergency cases (19.87%) had a COVID swab sent in 30-day post procedure period.
- No COVID swabs sent returned a positive result and no patients required treatment for COVID-19 infection

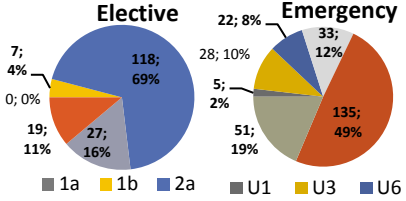
	Elective cohort	Emergency cohort
No. procedures	272	307
M:F ratio	150 male (60.5%), 98 female (39.5%)	176 male (66.17%), 90 female (33.83%)
Minimum age	5 days	1 day
Maximum age	18.7 years	17 years
Mean age	5.97 years	6.37 years

Table: Demographic data for patients identified during audit

Cohort by ASA status



Cohort by surgical urgency



Discussion

- Despite reduced capacity, 90% elective cases performed within recommended time & 94.8% emergencies performed on proposed date.
- 90.3% elective patients discharged by estimated LOS, and almost 80% of emergency patients discharged by estimated LOS despite unpredictable nature.
- APRICOT study (2018) reports 3.3% rate of severe critical event, but our complication rate includes all complications (surgical and anaesthetic)[5]
- PAPAYA study (2019) reports 2.5% unplanned day case admission rate, similar in our elective cohort, but higher in our emergency cohort[6]
  - Admission was logistical in majority of cases
- No COVID diagnoses despite changes to shielding protocol, and no positive patients in emergency cohort where shielding was not possible
- Limitations:
  - Not all patients were tested: advice to test changed from symptomatic patients only, then included elective patients, then all emergency admissions before a more conservative approach.
  - Patients may present to local hospitals with complications, data not available
  - No pre-COVID data to compare results with
  - Current practice as we enter a second lockdown is for all elective and emergency surgical patients to be tested if clinical urgency allows prior to operative intervention

Conclusion

- Our results demonstrate it is possible to perform urgent elective and emergency procedures safely and in a timely fashion.
- With inevitable future spikes, it is vital to maintain surgical services as safely as possible
- We aim to use this data in planning the management of our paediatric services and will continue to audit our outcomes.

References

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