Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Clinical audit of early extubation in a tertiary referral cardiac surgery unit

E. O'Riordan, C. Keane, N. Dowd

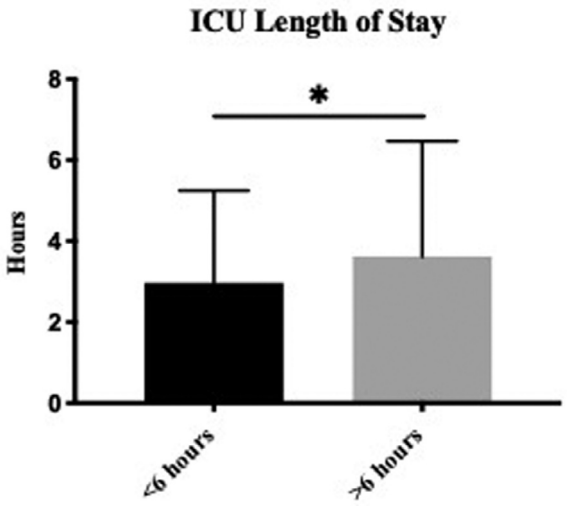
St James' Hospital - Department of Anaesthesiology, Dublin, Ireland

Introduction: Early extubation is a recognised standard of care for cardiac surgery patients[1]. Multiple studies have shown that there is no increase in morbidity and mortality for patients extubated early following cardiac surgery[2, 3], and that early extubation decreases Intensive Care Unit (ICU) stay [2, 4]. The JAMA 2019 guidelines define early extubation as within 6 hours post-operatively. The aim of this study was to assess local compliance with international guidelines.

Methods: We performed a retrospective analysis of all cardiac surgery undertaken in our institution over a 1-year period (n = 343). 79% were male (n = 273) and average age at time of operation was 64 years. We excluded patients who were not admitted to ICU post operatively (9%, n = 31) or for whom incomplete data was available (5%, n = 20). A total of 292 patient electronic records were therefore analysed. The extubation time was recorded, as well as total length of ICU stay, and total post-operative stay.

Results: Of the 292 patients analysed, the median time for extubation was 5.5 hours. 58% of patients were intubated for 6 hours or less.
We found a significantly shorter length of ICU stay for patients intubated for 6 hours or less (2.17 days vs 2.82 days, P = .0275). However, there was no significant difference in total post-operative stay between the two groups (9.3 vs 10.7 days, P = .4004).

Discussion: We are extubating over 50% of patients within 6 hours post operatively. In line with previous research there is statistically significant less overall time spent in ICU when patients are extubated within 6 hours post-operatively, however this does not affect total inpatient stay. Overall, regardless of time of extubation, the median ICU stay was short at 2.5 days.



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Reducing patient harm following inadvertent endobronchial placecement of nasogastric tubes in patients with SARS-COV-2

R. Mandalia, E. Poimenidi, J. Edwards, M. Charlton, S. Hanna-Jumma, P. Howells

University Hospitals Leicester - Glenfield Hospital Department of Critical Care, Leicester, United Kingdom

Introduction: Nasogastric tube (NGT) insertion is essential for enteral feeding but can potentially cause significant injury to the lungs (1). Following a critical incident, we audited our practice of NGT insertion and the consequences of injury in patients with Severe Acute Respiratory Syndrome COVID-19 caused by the (SARS-CoV-2) virus.

Methods: NGT insertion followed a local standard safety protocol and were inserted by consultants or senior registrars in anaesthesia and critical care medicine, or advanced critical care practitioners. Individual practitioners were able to choose their technique of insertion. All patients had their post-NGT insertion chest x-ray reviewed and those with misplaced NGTs had their case notes reviewed. Early in the outbreak, blind insertion was recommended in our institution to reduce aerosolisation, this was rapidly changed to direct visualisation with laryngoscopy as our experience managing SARS-CoV-2 patients increased.

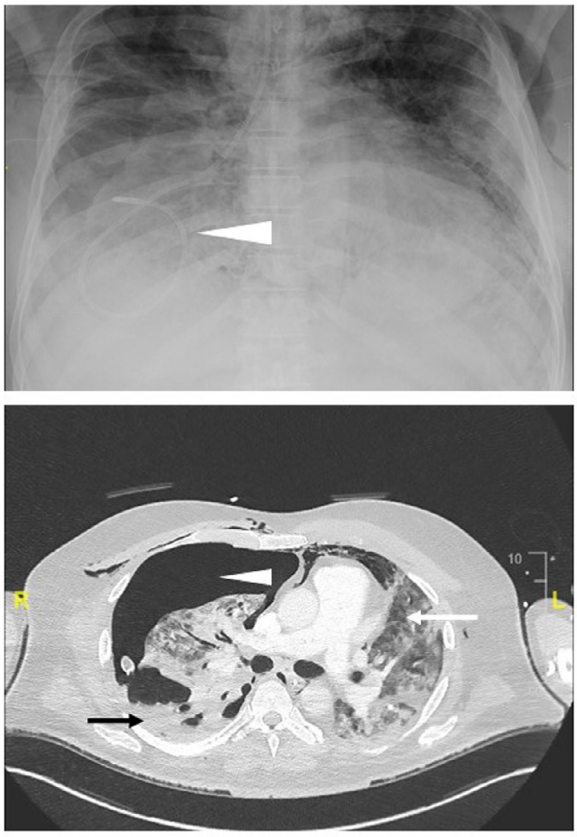
Results: During the SARS-CoV-2 pandemic, a total of 135 NGTs were inserted into ventilated and/or extracorporeal

membrane oxygenation (ECMO) patients. All of NGTs positioned were confirmed by a chest radiograph. Eleven (8.1%) were inadvertently endobronchial, of which four developed pneumothoraces (figure 1). Three patients (including both who had received ECMO) died and a fourth is currently undergoing a prolonged respiratory wean. No patients were fed or received drugs via a misplaced NGT.

Chest radiograph of patient with inadvertent NGT placement in right lower lobe. Note the path of the tube suggests breech of the bronchial tree and direct injury to the lung parenchyma (arrowhead). A CT the following day showed a large pneumothorax (arrowhead), some haemothorax (black arrow) and severe ground glass changes consistent with SARS-CoV-2 (white arrow).

Discussion: Our inadvertent endobronchial NGT rate is relatively high, compared to our previous clinical experience, which we believe may be related to the challenges of working with cumbersome personal protective equipment and/or changed practice to attempt to reduce transmission of SARS-CoV-2 (2). We suspect the lung parenchyma is particularly fragile in acute respiratory distress syndrome caused by SARS-CoV-2, which contributes to the high rate of pleural breech and subsequent poor outcome (3). We recommend experienced operators place NGTs and do so using direct or videolaryngoscopy to minimise the risk of incorrect placement.

We would like to thank the families of our patients for their permission to share the images in this work.



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Intracranial haemorrhage associated with systemic anticoagulation in ventilated COVID-19 Intensive care patients

K. Lenartova[1,2], N. Palomo-Lopez[1], M. Hoy[1], O. Kviatkovske[1], C. Walker[1]

[1]*Harefield Hospital, Department of Anaesthesia and Critical Care, Royal Brompton and Harefield NHS Foundation Trust, Harefield, United Kingdom*

[2]*Faculty of Health Sciences and Social Work, Trnava, Slovak Republic*

Introduction: COVID-19 induces a pro-inflammatory, hypercoagulable state with marked elevations of ferritin, C-reactive protein, interleukin, and D-dimers. Observed consequences include pro-thrombotic disseminated intravascular coagulation (DIC) with a high rate of venous thromboembolism (VTE) and elevated D-dimers with high fibrinogen and low anti-thrombin levels. Pulmonary congestion appears to be due to micro-vascular thrombosis and occlusion on pathological examination.1 The acquired pro-thrombotic state and associated poorer outcomes seen in critically ill COVID-19 patients 2,3 have led to such patients being treated empirically with systemic anticoagulants. Unfractionated heparin (UFH) or low molecular weight heparin (LMWH) have both been used.2,3

Methods: Review of COVID-19 positive adult patients admitted to the critical care unit between 10th March and 13th May 2020 with severe respiratory failure requiring invasive ventilation.

Results: In that period we admitted 59 patients. 6 (10%) females, 56 (90%) males. 45 (76%) patients required therapeutic anticoagulation (27 UFH, 14 LMWH, 4 argatroban). 4 (8.9%) of the 45 anticoagulated patients suffered catastrophic intracranial haemorrhage and subsequently died.

Discussion: The risk for any significant haemorrhage in patients systemically anticoagulated for VTE with unfractionated heparin (UFH) is 2-3%, 4 and that of anticoagulant-related intracranial haemorrhage (AICH) in patients systemically anticoagulated with UFH is 1-2.7% (in patients treated