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Inclusion of financial issues in the surgery cancellation categories introduced by Emanuel et al

Anaesthesia pre-admission clinics (PACs) have been established in several institutions, while others consider such clinics an economic burden; with the implementation of a Surgical Home Model (in the US) and having in mind perioperative clinical coordination in general, it seems to us that PACs can have numerous advantages, including patient optimisation before surgery, risk stratification and appropriate use of resources\(^1\). Further, the value of the PAC is evident by the reduction in surgical cancellations and cost reduction\(^2,3\). More importantly, the PAC provides the landscape for clinical research, team communication and collaboration between physicians of different specialties to improve the quality of patient care. Large-scale studies that specifically focus on the design of patient assessment in the PAC are currently being undertaken.

It is our opinion that the study of Emanuel et al\(^2\) provides novel insights into the efficacy of the PAC in reducing surgical cancellations due to clinical reasons. Using a retrospective analysis of data from a single institution in Australia, the authors reported that the overall anaesthetic-related cancellation rates were only 0.46%, and they promoted a systematic classification of all causes: 1) non-preventable misadventures, 2) patient or system errors, 3) clinical disagreement and 4) clinical deterioration. This study highlights the role of PACs in minimising cancellations. The authors suggested that changes of patient assessment in PACs would, in particular, reduce cancellations due to causes 2 and 4. We believe that their observation needs to be further expanded.

In contrast with the national health policies in Australia, perioperative surgical expense coverage in the US is far more complicated, making cancellation of surgery because of financial clearance or constraints common. We propose, therefore, to expand the authors’ original classification to include cancellations due to financial constraints. In order to provide evidence of the magnitude of cancellation related to financial mishaps, we are in the process of a retrospective analysis of a tertiary centre database: our PAC assesses 95% of all same-day surgery admissions, between on-site visits or phone assessment and the remaining 5% are evaluated only on the day of admission. Over the last six years, over 30,000 cases have been evaluated.

In an evolving ‘Perioperative Surgical Home’ model, the role of the preoperative clinic quality and effectiveness could be further enhanced when financial issues are also included.

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References

In response to Katsiampoura et al

We thank Dr Katsiampoura\(^1\) and her colleagues for their comments. It is true that the financial models of care differ widely between countries. In our study, carried out in a public hospital setting, all procedures, and indeed all care, are essentially ‘free’ to the patient. Therefore, failure to perform surgery as a result of financial consideration is not an appropriate reason for cancellation in this study. However, it is acknowledged that in other settings, this is not always the case.

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References

Intentional oesophageal intubation for managing regurgitation during endotracheal intubation

The ‘can’t intubate, can’t oxygenate’ (CICO) situation requires immediate, decisive management. Established algorithms currently recommend inserting a supraglottic airway device initially\(^1\). Regurgitation of gastric contents during airway management is another anaesthetic emergency, as it can cause airway obstruction, laryngospasm, bronchospasm, aspiration pneumonitis,
hypoxia and hypoxic cardiac arrest. Initial management of regurgitation includes positioning the patient in the Trendelenburg position, turning the patient to the lateral position, applying cricoid pressure and suctioning of the oropharynx. Here, we present a case where simultaneous cardiac arrest and massive regurgitation of gastric contents led to a CICO situation. In this case, all conventional salvage techniques recommended by established guidelines failed, were inappropriate or were inadequate. We describe how this situation was managed by improvising a technique where the oesophagus was intentionally intubated, thus directing the constant flow of gastric contents away from the larynx. This manoeuvre allowed the anaesthetist to clear the oropharynx of gastric contents and perform a controlled, standard endotracheal intubation. We obtained consent from the patient’s next of kin to publish these details.

An elderly man was admitted to our hospital with anterior myocardial infarction. After a brief assessment in the emergency department, he was transferred to our interventional laboratory for immediate percutaneous coronary intervention. Approximately 20 minutes into the procedure, the patient deteriorated with pulmonary oedema due to cardiogenic shock. In anticipation of an imminent cardiac arrest, the cardiac arrest team was activated. In our hospital, the on-call anaesthetists are responsible for airway management within the cardiac arrest team. The team consisted of a senior registrar anaesthetist with seven years’ anaesthetic experience, a senior consultant anaesthetist and an experienced nurse anaesthetist. Seconds before the team’s arrival, the patient went into asystolic cardiac arrest. The patient’s anatomy and current circumstances indicated potentially difficult airway management. Our patient was obese with a short fat neck. Cardiopulmonary resuscitation was ongoing and to make matters more difficult, the patient’s mouth and his rebreathing mask were filling up with gastric contents due to massive regurgitation. Moreover, the soiled airway was expected to make laryngoscopy and endotracheal intubation difficult and lead to pulmonary aspiration.

As the nurse anaesthetist prepared for endotracheal intubation, the anaesthetist attempted to ventilate the patient with 100% oxygen using a bag-valve-mask. This was quickly deemed a failure as little ventilation was achieved despite high inflation pressures. We then proceeded with the first attempt to perform endotracheal intubation. As the patient was in cardiac arrest, no anaesthetic drugs or muscle relaxants were used. Laryngoscopy confirmed gastric contents filling the mouth and pharynx. Suctioning cleared most of the secretions and an attempt to perform endotracheal intubation was made using a bougie. However, there was only a brief glimpse of the epiglottis, as gastric contents kept regurgitating into the patient’s mouth. Intubation with direct laryngoscopy failed, as did an attempt to blindly insert the bougie into the airway. Attempts to stop regurgitation by applying cricoid pressure were ineffective. This may have been due to the ongoing cardiac compressions in combination with the patient’s particular airway anatomy. Trendelenburg positioning or putting the patient in a lateral position were inappropriate as it would interfere with ongoing chest compressions and cardiac catheterisation. A second attempt at endotracheal intubation was again aborted due to steady and severe gastric regurgitation. Furthermore, the suction catheter became clogged by large particles and had to be manually cleaned in order to function properly.

After two unsuccessful attempts at intubation, a CICO situation was declared. Our local difficult airway algorithm, as well as established international algorithms, state that our remaining options were to secure the airway using either a laryngeal mask, intubation via an intubating laryngeal mask or performing a surgical airway. Given the high airway pressures required to mask ventilate the patient, inserting a laryngeal mask was considered inappropriate in this situation. Performing a surgical airway on this particularly obese patient with ongoing cardiac compressions would be both technically challenging as well
as time-consuming. Accordingly, none of the recommended options for airway salvage were likely to succeed in a timely manner.

Instead, a third attempt to perform an endotracheal intubation with a different strategy was made. This time, the anaesthetist deliberately intubated the oesophagus with a 7.0 mm endotracheal tube. After inflating the cuff balloon, the flow of gastric contents into the mouth stopped instantly and copious amounts of gastric contents drained to the side of the mouth via the oesophageal tube. The upper airway and mouth could now effectively be suctioned clean and the oropharynx remained dry. After minor manipulation, the trachea was subsequently intubated with an endotracheal tube mounted on a bougie. Despite a Cormack–Lehane grade 3, the intubation was perceived as easy (Figure 1). Endotracheal position was confirmed by capnography. The whole manoeuvre, from intubation of the oesophagus to the establishment of capnography, was estimated to take <30 seconds. We left the oesophageal tube in place and later used it to facilitate placing a gastric tube into the patient’s stomach. After confirming the correct position of the gastric tube, the cuff pressure in the oesophageal tube was released. Unfortunately, our patient failed to regain spontaneous circulation despite sustained advanced life support. Attempts to re-establish coronary circulation were also unsuccessful. Life was pronounced extinct after 45 minutes.

In summary, we report a case where persistent regurgitation resulted in a CICO situation. Unfortunately, conventional measures against regurgitation were ineffective and considered inappropriate as they would have interfered with ongoing chest compressions and the interventional cardiac catheterisation procedure. Conventional techniques for salvaging the failed airway were also inappropriate or inadequate due to the patient’s anatomy and ongoing resuscitation. This precarious situation was resolved by improvising a technique whereby the oesophagus was intentionally intubated using a cuffed endotracheal tube, thus directing the constant flow of regurgitated gastric contents away from the larynx and allowing the anaesthetist to clear the oropharynx and perform a standard endotracheal intubation. We would recommend this manoeuvre in similar situations. It may be that, in some circumstances, a larger endotracheal tube might better facilitate the clearing of regurgitated gastric contents, but in the present case a 7.0 mm endotracheal tube was sufficient. Consideration could also be given to inserting the endotracheal tube via the nasal route into the oesophagus, thereby reducing potential obstruction of the laryngeal view. However, this would risk a nasal bleed.

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References

Impact of anaesthesia on outcomes after radiocephalic arteriovenous fistula creation

We report the results of a local study into the impact that anaesthesia technique may have on arteriovenous fistula outcomes. Regional anaesthesia for arteriovenous fistula (AVF) may improve fistula flow but there have been no randomised controlled trials demonstrating its effect on subsequent access patency. Conversely, regional anaesthesia may be associated with a higher risk of peripheral nerve dysfunction in this patient group with predisposing factors for neuropathy.

In anticipation of a larger comparative trial, this pilot study explored the effect of regional versus general anaesthesia on 30-day primary access failure rate and peripheral neural events (defined as new sensory or motor events) in a centre with a high rate of regional anaesthesia use. After local ethics review (Approval No.: 03756), a retrospective chart analysis was performed on patients undergoing initial autogenous radiocephalic arteriovenous fistula creation at a single institution between 1 January 2007 and 30 June 2009. Patients were contacted with a scripted interview if details were unclear from the review.

One hundred and twenty-three (123) patients were identified, of whom 107 had regional anaesthesia and 16 had general anaesthesia. Thirty-day primary AVF access failure rate was greater in the general anaesthesia group (31%) compared to the regional anaesthesia group (11%). Excluding patients where no data could be obtained, peripheral neural deficits occurred in 9% of patients. The incidence was similar between the regional anaesthesia and general anaesthesia groups (9% versus 13%, respectively).

The limitations of our study are its retrospective nature, small sample size and uneven distribution of regional and