ANAESTHESIA

SSC 5C: Elective Report

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Elective Subject: Anaesthesia
Elective Location: The Royal London Hospital, UK
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Objectives:

1. What are the anaesthetic aspects of perioperative management in relation to medical conditions that are prevalent in an urban UK setting?

2. Gain and understanding of anaesthetic provisions within The Royal London Hospital.

3. Develop an understanding of the potential immediate, short and long-term complications of anaesthesia and their prevention and management.

4. Gain experience and confidence in practical procedures for progression to FY1.

Introduction

During my 5 week medical elective placement I gained an insight into the specialty of anaesthetics. By attending a wide variety of surgical lists I was able to observe various methods of anaesthesia including local skin infiltration, nerve blocks, epidurals and spinals. I observed several general anaesthetic techniques including intravenous induction, gas induction and rapid sequence induction. My experience allowed me to not only gain knowledge and experience in the major role of anaesthetics during surgery but to also gain knowledge and skills that are used in all aspects of patient care.

What are the anaesthetic aspects of perioperative management in relation to medical conditions that are prevalent in an urban UK setting?

An anaesthetist is required to have a thorough understanding of medicine and surgery as an average day could not only include a wide range of surgeries but also patients with a wide range of comorbidities. This vast knowledge coupled with an in-depth understanding of physiology and pharmacology allows the anaesthetist to prepare a patient for surgery. The major role of the anaesthetist in preparing a patient for surgery includes the assessment of risk, which begins, with a pre-operative assessment.

Important aspects of the pre-operative assessment include a thorough past medical history of current medical conditions and of symptoms that may gage cardiorespiratory fitness such as chest pain, shortness of breath and exercise tolerance. The past medical history also includes past surgical procedures and any previous anaesthetics to anticipate possible difficulties. Family history of anaesthetic complications is also important. This information is also attained from previous anaesthetic charts, which are present in the patient's notes and should be consulted to identify previous complications. Drug history is significant in deciding whether certain medications need to be stopped prior to surgery such

as anticoagulation. The patient's allergy status is also evaluated as drug allergies may require alternative medications to be used and some food allergies such as seafood may mean surgical iodine solution is unable to be used.

After a social history the anaesthetist assigns an ASA (American society of Anaesthetists') score. This score is used as a predictor for peri-operative outcome with a score of 1 for a normal healthy patient has an absolute mortality of 0.1%. Conversely a score of 5 for a moribund patient who is unlikely to survive 24 hours without surgery has an absolute mortality of 9.4%.

Preoperative investigations are targeted towards those who have greater risk of morbidity and/or mortality. These include those with cardiovascular, respiratory and renal disease. Patients with these comorbidities will need an ECG +/- ECHO, chest xray/spirometry and urea and electrolyte levels respectively.

Following the assessment of the patient's fitness for surgery an airway assessment is carried out. While this varies from consultant to consultant, the most common assessments include; mallampati score, thryomental distance, sternomental distance, protrusion of the mandible, quality of dentition and range of neck movement. These are used to indicate difficulty in bag valve mask ventilation, insert of a laryngeal mask and intubation. Aspects of the history can also help in predicting difficult airways such as BMI, history of obstructive sleep apnoea, arthritis of the neck and gastro-oesophageal reflux disease. Being aware of potential difficulty allows the anaesthetist and the ODP to be prepared.

After gathering this information the anaesthetist will decide whether the patient is fit for anaesthesia and which method of anaesthesia is suitable (general, local, regional). In a population where comorbidities are common the key questions that need to be answered using the detailed history taken are; is this patient as well as they can be? And if not what can be done to ensure that this is the case?

Gain and understanding of anaesthetic provisions within The Royal London Hospital.

Anaesthetics forms the largest medical specialty in the majority of hospitals. Its practice encompasses the preparation of surgical patients including pre-assessment clinics, resuscitation of patients in emergencies as part of an on-call crash team, intensive care, acute and chronic pain medicine, anaesthesia in labour and obstetrics and the use of sedation in many procedures outside of the operating theatre such as endoscopy. In addition, they deliver services to patients visiting radiology, radiotherapy, cardiology, MRI and medical oncology.

Develop an understanding of the potential immediate, short and long-term complications of anaesthesia and their prevention and management.

My experience has allowed me to understand the major role of the anaesthetist in predicting and preventing complications. These complications can arise in all areas of anaesthetics from in the anaesthetic room to recovery. Important complications of general anaesthesia include; nausea and vomiting, damage to teeth, sore throat, anaphylaxis, respiratory depression, hypothermia, nerve injury, aspiration pneumonitis, awareness, air embolus and death. These complications are related to the medications used, the equipment used and the environment in which the patient is subjected to.

Induction and anaesthetic agents are known to cause vasodilation and hypotension, muscle relaxants are related to specific conditions such as malignant hypothermia whilst the use of a laryngoscope can cause damage to the lips and teeth. Nerve injury could be as a

result of regional blocks; however, positioning of the patient can also cause peripheral nerve damage. Pressure point protection is vital to prevent this and care must be taken during positioning of the patient for surgery. Aspiration pneumonitis can occur as a result of an unprotected airway and can be prevented by ensuring the patient is adequately fasted for elective procedures and/or the use of medications such as ranitidine and metoclopramide. The potential fatal complication of air embolism is targeted with anti embolic stockings (TEDs, Flowtrons).

These risks are all assessed with the patient and this ensures the anaesthetist is better prepared for complications and can take appropriate action to prevent them in any way possible.

The most interesting complication and area in which I was fortunate enough to attend a tutorial on was difficult airway management. I was also able to witness a couple of difficult airway situations showing me the importance of assessment, communication within the team and planning. The cases I witness highlighted that oxygenation is the priority, time should not be wasted on repeated failed attempts of intubation, or repeated failed attempts at laryngeal mask airway insertion. Oxygenation must be achieved using the most appropriate technique and as long as the patient can be adequately oxygenated and ventilated by a facemask or by using airway adjuncts, the primary objective of oxygenation is met.

Gain experience and confidence in practical procedures for progression to FY1.

During my placement I used every opportunity to carry out tasks that an FY1 may be expected to do. Each day I helped the anaesthetists to prepare IV drugs that required knowledge of the medication used, doses and drawing up and administering the medication in the appropriate way. I also had the opportunity to practice inserting cannulas and learning techniques from those that are expertly skilled. This will be valuable as an FY1 as it is a very common procedure which can be very time consuming if not done well. I also learnt how to successfully hold and secure an airway. Although this felt a simple task to begin with I soon recognised it was not and found it particularly challenging when upon spending a week in paediatrics, the technique I had mastered after 3 weeks with adult patients no longer worked with young children or neonates. After adapting to the new techniques used at the end of my 5 weeks I felt confident in all areas of induction including airway evaluation, anaesthetic preparation, cannulation, drug administration, mask ventilation, laryngoscopy, laryngeal mask airway inserting and confirming a secure airway. I was also able to work with the multidisciplinary team in particular when leading transfers into the operating theatre. With respect to preparation for FY1 I believe anaesthetics was a good choice as it had numerous opportunities to practice skills I will need in the future.

Conclusion

These past 5 weeks have enabled me to feel more confident and prepared for my upcoming employment as a foundation year 1 doctor, in particular with regard to practical skills and emergency management. In addition to this I have gained an insight into the stages of training, which will be invaluable when deciding on my future career. I am happy to say I have thoroughly enjoyed my final placement as a student at Barts and The London Medical School.

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