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ELECTIVE REPORT

Compare and contrast the practice of anaesthesia in different surgical disciplines and between adult and child patient groups.

While at the RLH I have spent time in a number of disciplines including dentistry, obstetrics and gynaecology, endoscopy, interventional radiology and vascular surgery, while also attending emergency theatre on a number of occasions. In dentistry I have had the opportunity to come into contact with adult and child patient groups.

Although there are obviously a number of similarities in the way in which anaesthesia is managed in all patients there are also a number of peculiarities which are specific to the discipline. For example, dentistry is a particular challenge as the anaesthetist and surgeon are sharing the airway and it is particularly easy for an obstruction to occur due to surgical manoeuvres within the oral cavity. Care must, therefore, be taken to maintain the airway and ensure patient safety. As dental surgery is also conducted at a site remote from main theatres only patients with minimal health problems (ASA I or II) are suitable for anaesthesia in this environment, which means that pre-assessment is important. When dealing with children in this environment it is important to alleviate their concerns about the procedure and ensure that the level of information given is appropriate, while also managing the concerns of parents. In one case it was felt that the child concerned would be better suited to an inhalational rather than venous induction, which was interesting as I had never observed this method of induction before.

In obstetrics there is particular concern associated with acid reflux and the risk of aspiration, due to increased intra-abdominal pressure, and women are pre-medicated with ranitidine and metoclopramide. The aim of patient management within obstetrics is to avoid GA where possible to reduce the risk of aspiration. Women attending for LSCS are managed with a central neuraxis blockade (spinal and epidural) combining local anaesthesia with analgesia (bupivacaine, lignocaine and diamorphine). However, this method of anaesthesia carries its own risks, particularly hypotension. This was particularly evident in a case I observed where the woman had failed to progress despite 14 hours in labour. She had a significant history of acid reflux and there were concerns that the procedure would need to progress to a GA. Although the case was successfully managed with spinal and epidural blockade, the patient was unable to maintain her BP and a phenylephrine infusion was necessary.

Anaesthetic techniques are also commonly combined to give the best possible outcome for the patient. In vascular surgery central or regional blockades are often used to contribute to analgesia and in some cases, such as epidurals, can be maintained after the surgery for PCA.

Gain an understanding of anaesthesia provision within the RLH and participate within an audit to appraise this service.

During my time on elective I attended a Morbidity and Mortality meeting where concern was expressed over the lack of incident forms and reporting within the department. Although I was not involved with any review of these forms I found the meeting interesting as an issue that was addressed was the frequency with which anaesthetists are expected to attend other departments where there is not adequate equipment to ensure patient safety. Examples of such departments include dentistry, obstetrics, endoscopy and radiology.

I was involved with a scenario in endoscopy where a situation developed that could potentially have caused harm to the patient if it were not for the fact that the anaesthetist and ODP had insisted on delaying the procedure until the correct equipment was available. The patient was attending for a colonoscopy under GA and had been nil by mouth for solids for 24 hours and 2 hours for liquids. As she was induced with propofol, and the airway maintained, she vomited. Prior to her arrival there had been no trolley within the department available for induction that permitted the patient to be positioned head down in the event of reflux. The fact that this trolley had been insisted upon by the anaesthetist and ODP meant that this patient was able to be adequately positioned and suctioned to prevent aspiration. She was then intubated and a NGT passed to suction gastric contents. At the M&M meeting mentioned above, another anaesthetist reported a similar scenario where he had not had adequate equipment available. From these experiences it was concluded that there needs to be a list of equipment made that is the minimum requirement within these environments outside of theatre to ensure patient safety.

The department are encouraging staff to submit more incident forms so that they can assess areas of difficulty within the department and shortcomings within the service. One particular consultant is overseeing the incident forms with a view to collating information and gauging response. While on elective I was mindful as to other situations in which incident forms were completed and the reasons why the situation had arisen, even though I was not involved in any formal audit process.

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

The prevention / management of complications within anaesthesia is mostly related to the quality of interaction between the MDT and being aware of problems that may develop and developing appropriate management plans. It is important in the theatre team that both the surgeons and anaesthetists have an understanding of the patient's presenting condition and any underlying disease so that they are able to adequately risk assess the patient with regard to formulating a treatment plan. This requires good communication within the team, and with the patient, and respect for one another's area of specialist expertise. In addition staff must be mindful to work within the scope of their experience and be aware of their limitations.

While on elective I was able to observe a number of cases which I found particularly interesting in view of risk assessment and prevention of complications. The first was a gentleman undergoing repair of a femoral aneurysm, with an ejection fraction of 40-45% and end-stage nephropathy from T2DM (haemodialysis). Anaesthetic concerns related to the patient's cardiac and renal output, therefore, fluid during the procedure was restricted to 500ml of NaCl, an arterial line inserted to monitor BP and the ECG electrodes reconfigured to give a more accurate reading similar to V5. During the operation the patient developed ischaemic changes on the ECG and a GTN infusion was started and hypotension controlled with bolus doses of meteraminol. Decisions on adequate methods of monitoring prior to the operation meant that complications were dealt with quickly.

Another example included the case of a woman having a femoral-popliteal bypass who had a number of co-morbidities (ASA III) including COPD and a history of various cancers. Due to her COPD and general wheeze on examination it was decided that she was unsuitable for GA. Instead the patient was given midazolam, an infusion of remifentanyl and nerve blocks at the femoral and sciatic nerve. On this occasion the patient could not be managed on the

remifentanyl infusion and continued to experience pain so she progressed to a GA. Despite anaesthetic concerns she was well on emergence. The emphasis in this case, however, was that the pathway with least risk was employed in the first instance.

The final case concerns the case of a gentleman undergoing repair of an abdominal aortic aneurysm. The patient had a number of co-morbidities, including a triple CABG only two weeks before. The surgeon had decided that he wanted the procedure done under GA, despite the fact that the surgery was likely to be only percutaneous and was against the advice of the anaesthetist. A midazolam infusion was necessary to maintain BP from the outset, but as the surgery continued and blood loss increased a blood transfusion of 4 units was necessary to maintain volume. In this case better discussion between the team may have allowed an alternative method of anaesthesia to be considered which was safer for the patient.

In general the role of the anaesthetist is devoted to preventing complications through prevention of hypovolaemia, hypoxia, hypotension, airway problems, drug errors, aspiration and adequate emergency management. Although it is tempting to think of anaesthetic complications as being a 'list' of conditions I learnt that it is better to actually think about the potential complications to the individual on a case by case basis to develop a treatment plan, which increases the likelihood of including all the necessary factors.

Develop competence and confidence in skills outlined within the logbook for progression to FY1 and to become competent in pre-operative assessment, for a range of conditions, through reflective review of cases.

A number of skills are used regularly within an anaesthetic environment and I have had ample opportunity to practice drawing up drugs, carry out simple drug calculations, cannulation, airway management and LMA insertion. In addition I have had the opportunity to observe various methods of fluid management and participate in checking blood transfusions. I feel that my knowledge of physiology has improved and that I now have a much better understanding of the monitoring routinely used on patients and the limitations of certain methods. I have also learnt to do basic suturing.

I have developed my confidence in doing pre-operative assessment and classifying patients into ASA categories and mallampati classes. I carried out a number of pre-operative assessments in dentistry using the anaesthetic chart used in the RLH and attempted to carry out some assessments on vascular patients, which are considerably more complicated. I have learnt that the basis for good pre-operative assessment is to take a detailed and comprehensive history focussed on both the concerns surrounding the condition itself e.g. in vascular it would include assessment of IHD, diabetes, HTN etc, while also considering the general concerns of anaesthesia e.g. reflux, neck movement, prior personal / family history of GA (malignant hyperthermia). I have collated a number of case reports in my time at the RLH on cases I have found particularly interesting.