

ELECTIVE (SSC5c) REPORT (1200 words)

A report that addresses the above four objectives should be written below. Your Elective supervisor will assess this.

What is the prevalence of a common condition that can make airway management difficult in the UK and how does it compare to its prevalence in other countries?

Obesity can affect airway management by making it difficult to both mask ventilate patients and then to intubate them. It can also affect lung function itself by reducing residual capacity¹.

In the UK, the prevalence of obesity in adults has increased over 25 years, going from 7% in 1978 to 25% in 2012. The prevalence appears to be similar in women and men, with 25% and 24% prevalence respectively in adults in the UK³.

This increasing trend is similar to the worldwide prevalence which has also almost doubled between 1980 and 2008, with obesity affecting between 10% and 30% of adults⁴. The prevalence in the UK is less than that of some countries such as USA and Mexico, 35% and 32% respectively. However the UK is still higher in prevalence than many other countries such as India and Indonesia, where the prevalence of obesity in adults is as little as 2%³.

How is anaesthetic care delivered to patients perioperatively in the UK for elective procedures? How does this differ from other countries?

Anaesthetic care begins preoperatively with an assessment of the patient to determine if they are fit for anaesthesia, as well as trying to predict any difficulties that may occur in managing an airway. This assessment can either be done in a preadmission clinic, which can allow for arranging further investigations such as echocardiograms, ECGs, or lung function tests if indicated, or can be done the day prior to or morning of the planned procedure. At this stage, different types of anaesthesia that would be appropriate for the patient are also discussed, and consent is gained⁵.

Once patients arrive in theatre, they are usually first brought into the anaesthetic room. In here, after checks for patient identity and consent for procedures are checked, monitoring is usually applied to the patient and IV access is established. If patients are having regional anaesthesia, this will then be carried out. If patients are having general anaesthesia, at this point, induction of anaesthesia is carried out, followed by either insertion of either an LMA or endotracheal tube to allow ventilation of the patient. At this point, any further procedures, such as arterial line insertion, can be carried out. Once this is all complete, the patient is detached from the monitoring equipment, transferred into the

theatre, and reattached to the monitoring equipment. Before the start of the surgery, the WHO surgical check list will be checked by all staff in the theatre. Throughout the procedure, the patient will be monitored, using parameters such as BP and heart rate, as well as be given any additional medication they require such as analgesics, antibiotics and anti-emetics⁵.

Once the procedure is completed, for patients under general anaesthetics, any muscle relaxants will be reversed if appropriate, and the patient will be extubated in theatre, whereas LMA's may be removed in recovery. The patients are then taken to recovery whilst still on oxygen and are handed over to the team there. Any post-operative drugs, such as analgesics and anti-emetics, are usually prescribed before leaving the patient in recovery.

In the UK, anaesthetic care is generally always performed by or under the supervision of a doctor trained in anaesthetics. This is not the case in some other countries. For example, in USA, for low risk patients, Certified Registered Nurse Anaesthetists will administer the majority of anaesthetic care⁶.

Another difference between the UK and other parts of the world is the use of the anaesthetic room. In some other parts of the world, anaesthetic care will be carried out in the theatre as they will not have an anaesthetic room.

What is malignant hyperpyrexia and how does it impact anaesthetic care?

Malignant hyperpyrexia is a genetic myopathy that occurs after exposure to certain triggers. It is inherited in an autosomal dominant pattern with a mutation in the ryanodine receptor gene found on chromosome 19, which in turn affects calcium homeostasis in skeletal muscle⁵.

Triggers of malignant hyperpyrexia include many volatile anaesthetic gases, and depolarising muscle relaxants. Exposure to these triggers causes calcium to be released from the sarcoplasmic reticulum resulting in a hypermetabolic state. Signs and symptoms include muscle rigidity, tachypnoea, tachycardia, hypoxia, hypercapnia, metabolic acidosis, and rhabdomyolysis. A rise in temperature is a late sign, despite what the name suggests, and a diagnosis of malignant hyperpyrexia should not be excluded if there is a no change in temperature⁷.

Though malignant hyperpyrexia is rare, it can result in a life threatening situation and can therefore greatly impact anaesthetic care. It can present on a patient's first exposure to triggering agents, and if it does occur should be treated with an ABCDE approach, with the addition of removing the triggering agents, actively cooling, and using IV Dantrolene⁵. For patients with known malignant hyperpyrexia,

alternatives to general anaesthesia should be considered. If general anaesthesia is needed, then consider using agents which do not trigger it such as non-depolarising muscle relaxants, and using IV anaesthesia to keep patients asleep instead of volatile gases⁵.

Reflect on how this placement has prepared me for starting FY1

The main area that I was keen to develop prior to starting my placement was my airway management skills. During my placement, I feel that I have multiple opportunities to not only practice holding a face mask, but also to insert airway adjuncts and LMAs. I feel that this has helped me to increase my competency at managing an airway under supervision, and prepared me for my FY1 next year when I may be the first person to arrive at a situation where a patient's airway may be compromised.

I also found it useful to go through the drugs that were prescribed post operatively, especially the analgesics and anti-emetics. As I have seen these being prescribed as required post operatively for the majority of the patients I saw, I have a better understanding of how and what to prescribe. I could have improved this even more by practising to prescribe some of these drugs myself so I could get into the habit for next year.

Another thing I think will be useful for next year is that I had the opportunity to see multiple blood transfusions being given, which allowed me to practice the pre-transfusion checks required. Though I have had the opportunity to witness this before, I was able to see this done multiple times in a short amount of time which gave me a better chance to learn and remember the checks that need to be carried out.

References

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