

GENERAL ANAESTHESIA

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General anaesthesia is commonly described as the triad of unconsciousness, analgesia and muscle relaxation. Summary box 23.2 The general anaesthetic triad /uni25CF /uni25CF /uni25CF Induction of general anaesthesia is most frequently done by intravenous agents. Propofol has replaced thiopentone as the most widely used induction agent and can be used for maintenance of anaesthesia. Other infrequently used intravenous agents include etomidate and ketamine. Newer agents based on a benzodiazepine receptor agonist, etomidate derivatives and fospropofol are still in the experimental stage. Inhalational induction using agents such as non-pungent sevoflurane is useful in children, needle-phobic adults and those in whom a difficult airway is anticipated. These patients will have a higher risk of developing airway obstruction. Figure 23.1 shows a commonly used anaesthetic machine. Summary box 23.3 Key features of commonly used intravenous anaesthetic agents /uni25CF /uni25CF /uni25CF /uni25CF Rapid sequence induction (RSI) using a predetermined dose of intravenous anaesthetic agent together with a rapidly acting muscle relaxant is used in those with a high risk of regurgitation in order to secure the airway quickly. Commonly needed in emergency surgery, it is also a technique of choice in any non-emergency surgery in a patient with delayed emptying of the stomach. Total intravenous anaesthesia (TIVA) is becoming popular following the introduction of propofol and the ultra-short-acting opioid remifentanyl. The lack of cumulative effect, better haemodynamic stability, excellent recovery profile and concerns over environmental effects of inhalational agents have made TIVA an attractive choice. TIVA is routinely used in neurosurgery, airway laser surgery, during cardiopulmonary bypass and for day case anaesthesia. Summary box 23.4 Special terms in anaesthesia /uni25CF /uni25CF Maintenance of anaesthesia can be done using a continuous infusion of intravenous agent (propofol) or an inhaled vapour such as isoflurane, sevoflurane or desflurane. The use of nitrous oxide is declining, despite its analgesic and weak anaesthetic properties, because of concerns over postoperative nausea and vomiting. It also increases the size

Amnesia: loss of awareness Analgesia: pain relief Muscle relaxation Propofol (di-isopropyl phenol) : smooth induction, better haemodynamic stability, blunting of autonomic reflexes and ability to use as a continuous infusion Thiopentone (barbiturate) : rapid induction, myocardial depression. A reduced metabolic rate and lowering of intracranial pressure is useful in neurosurgical patients but the drop in blood pressure can have detrimental effects Etomidate (steroid derivative) : good haemodynamic stability, brief duration of action, but concern over adrenocortical depression Ketamine (phencyclidine derivative) : preservation of blood pressure and respiratory reflexes together with excellent analgesia makes it an ideal choice for field anaesthesia. Emergence delirium is associated with administration of ketamine Figure 23.1 Anaesthetic machine. RSI is a technique that allows the airway to be rapidly secured. It is used when there is a high risk of regurgitation that may lead to pulmonary aspiration TIVA is becoming increasingly popular

and abdominal surgery . Finally it is possibly mutagenic and is a powerful greenhouse gas.

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Rapid sequence induction (RSI) using a predetermined dose of intravenous anaesthetic agent together with a rapidly acting muscle relaxant is used in those with a high risk of regurgitation in order to secure the airway quickly. Commonly needed in emergency surgery, it is also a technique of choice in any non-emergency surgery in a patient with delayed emptying of the stomach. Total intravenous anaesthesia (TIVA) is becoming popular following the introduction of propofol and the ultra-short-acting opioid remifentanyl. The lack of cumulative effect, better haemodynamic stability, excellent recovery profile and concerns over environmental effects of inhalational agents have made TIVA an attractive choice. TIVA is routinely used in neurosurgery, airway laser surgery, during cardiopulmonary bypass and for day case anaesthesia. Summary box 23.4 Special terms in anaesthesia

Maintenance of anaesthesia can be done using a continuous infusion of intravenous agent (propofol) or an inhaled vapour such as isoflurane, sevoflurane or desflurane. The use of nitrous oxide is declining, despite its analgesic and weak anaesthetic properties, because of concerns over postoperative nausea and vomiting. It also increases the size

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