New Anesthetic Available

INSTRUCTIONS

Carefully read the scenario and answer the following questions. Responses should be concise, yet contain sufficient detail to completely answer each question. Submitted answers must be legibly written or typed; illegible documents will be returned to the student. Documents submitted electronically must be in an instructor approved format. All resources required to complete this assignment can be found immediately following case questions.

SCENARIO

You are the head technician at a large surgery center. You and the primary orthopedic surgeon are meeting with a representative from a large pharmaceutical company. The purpose of the meeting is to determine if a new inhalation anesthetic will better suit the practice's needs. The practice currently uses both sevoflurane and isoflurane. The new anesthetic agent, forgetflurane, has just been approved for use in veterinary medicine.

QUESTIONS

1. What are the characteristics of the ideal inhalation anesthetic agent? (2 Points)

2. Jim Wilson, the sales representative, asks if you have an anesthesiologist on staff, or if you utilize anesthetists. What is the difference between these two individuals? Legally, who must select the anesthetic protocol for a surgery? (2 Points)

3. The sales representative states, "This new anesthetic has no effects on the vital systems." As a trained technician you know that all anesthetics have some effect (minimal to extreme) on the vital systems. Please explain how inhalation anesthetics in general can effect ventilation, cardiovascular function, blood pressure, and CNS activity. (2 Points)

4. Mr. Wilson states that the minimum alveolar concentration or MAC value of forgetflurane is 0.75. The MAC value of isoflurane and sevoflurane in dogs is 1.28 and 2.1 respectively. Please explain how MAC relates to anesthetic potency. Is the new anesthetic more or less potent than isoflurane? Which of the three agents is the least potent? (3 Points)

5. The post-operative analgesic effects of Forgetflurane are similar to those of isoflurane and sevoflurane. Knowing this, do you think the DVM will likely order post-operative analgesics or rely primarily on the post-operative analgesic activity of the inhalation agent? Why? (2 Points)

6. The orthopedic surgeon states that she prefers using sevoflurane because of the rapid recovery. The solubility coefficient of sevoflurane is 0.6. isoflurane's solubility coefficient is 1.4. The new anesthetic has a solubility coefficient of 2.0. Please explain how solubility relates to induction and recovery times. Would you anticipate the induction and recovery times for forgetflurane to be faster or slower than sevoflurane? (2 Points)

7. You have purchased several bottles of forgetflurane. The new anesthesia assistant is about to fill the Isoflurane vaporizer with the new agent. Is this appropriate? Please elaborate. (1 Points)

8. Mr. Wilson states, "forgetflurane is considered very safe and there are few concerns regarding waste gas exposure." Given your prior training, you know that reducing exposure to waste gas is extremely important. What are the most common sources of exposure to waste gas? (2 Points)

9. You oversee quality control at the clinic. Part of this responsibility includes ensuring that OR personnel adhere to established safety protocols regarding waste anesthetic gas. Please describe the precautions that should be implemented to minimize exposure to waste gas. (2 Points)

10. Please describe the practices recommended for safe handling of compressed gases (i.e., oxygen tanks). (1 Point)

11. A veterinary assistant asks, "Are there any immediate effects if I get exposed to the waste gas?" Identify the short-term effects associated with waste anesthetic gases. (2 Points)

12. Your clinic's anesthetic machine is pictured in Figure 6-1. You are responsible for ensuring that clinic personnel understand the requirements for weekly maintenance of the machine. You want to be certain that all staff members are familiar with the equipment. Please identify the labeled parts on the anesthetic machine in Figure 6-1. (4 Points)

REFERENCES

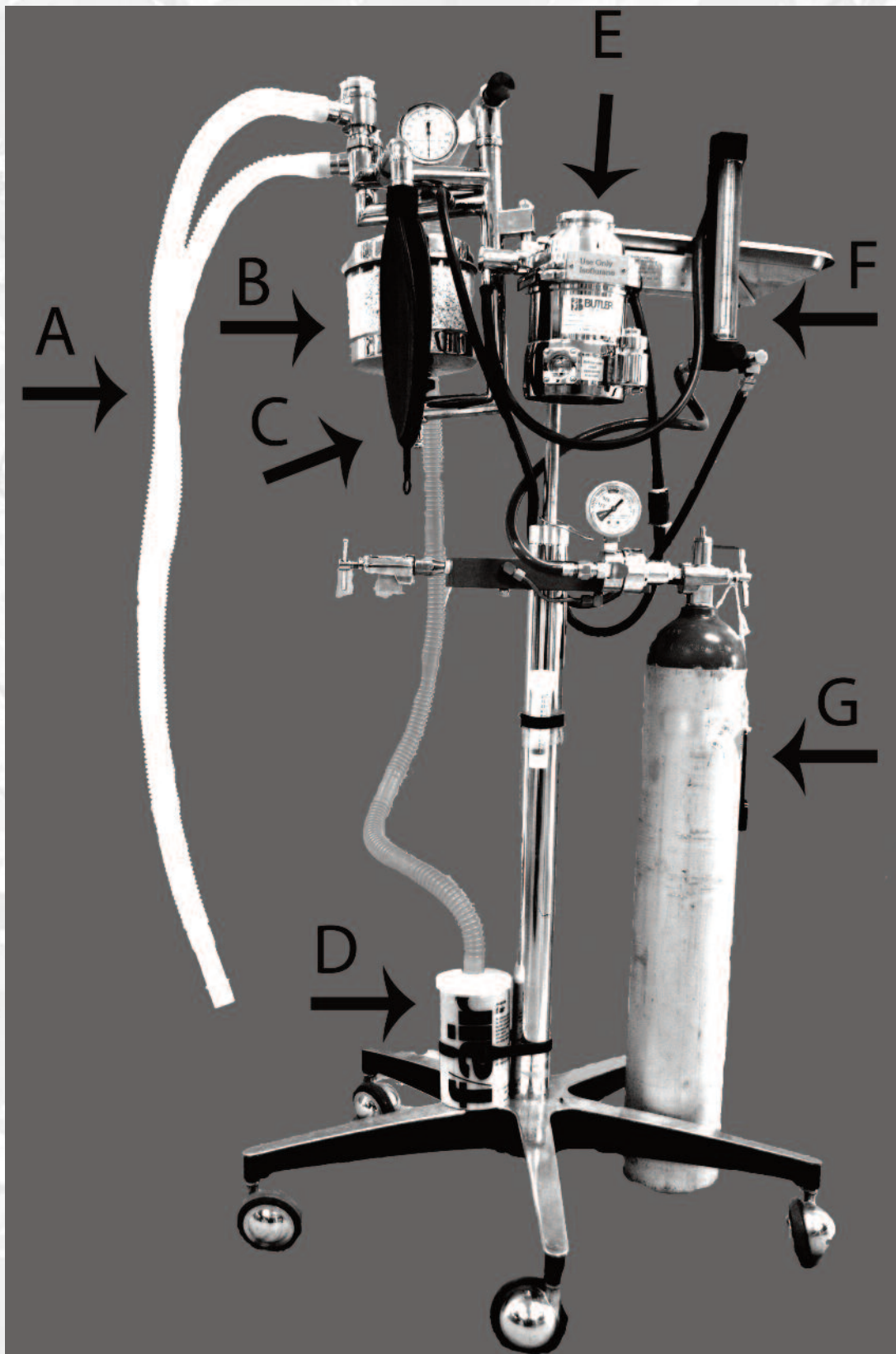Thomas, J., Lerche, P., (2011) *Anesthesia and Analgesia for Veterinary Technicians 4th ed.* St. Louis, MO, Elsevier.

Figure 6-1 Anesthetic machine