CASE INFORMATION AND FORMULATION ASSIGNMENT

**Case Formulation Critical Clinical Thinking Exercise: Mandy, the Hypotensive Dog – Individual Exercise due 8 AM, January 29, 2013**

***Please follow the explicit directions in the accompanying document, “DirectionsWKMFormulation.pdf” and submit the entire case file after you have completed all directions to the VM603 Compass 2g site.***

Refer to the following figure (Figure 1) when reviewing this case and answering questions. The figure will NOT be copied into the website used for developing your case formulation.



**A**— Delivered concentration of isoflurane was decreased from 2% to 1.25%, and boluses of lactated Ringer's solution (20 mL/kg) and 6% hetastarch (10 mL/kg) were administered IV over 45 minutes.

Either copy the entire document to your clipboard or all of the text that comes after this sentence - you don't have to look closely at it unless you really like that sort of thing.

<Title> Mandy, the Hypotensive Dog </Title>

<Presenting Information Abbreviation>O</Presenting Information Abbreviation>

<Formulation Abbreviation>P</Formulation Abbreviation>

<Framework Abbreviation>F</Framework Abbreviation>

<Question Abbreviation>Q</Question Abbreviation>

<Additional Abbreviations>A,M,L,R</Additional Abbreviations>

<Formulation Relationships>Cause, Association, Quality Evidence, Learning Issue,</Formulation Relationships>

<Presenting Information>Signalment: 4-year-old spayed female mixed-breed dog

History: Brought to the Dentistry Service at the Veterinary Medical Teaching Hospital for examination of a fractured left maxillary fourth premolar. Complete dental cleaning and a root canal were scheduled.

PE: On the day of the procedure, the dog weighed 19 kg (42 lb) and was bright, alert, and responsive. Results of a complete physical examination were unremarkable aside from the dental abnormalities. The dog was classified as American Society of Anesthesiologists status II because of the mild dental disease.

Clinical Laboratory: Results of a CBC and serum biochemistry profile were within reference limits

Pre-Medication: Morphine sulfate (15 mg, IM); Acepromazine maleate (0.2 mg, IM).

Anesthesia: Thiopental sodium (250mg, IV) and maintained with isoflurane (2%) administered in oxygen via an 11-mm cuffed endotracheal tube and circle breathing system. Oxygen flow rate during anesthetic induction and maintenance was set at 1 L/min. The patient was instrumented with an electrocardiograph, pulse oximeter, capnometer, and oscillometric blood pressure monitor. The cuff for the oscillometric blood pressure monitor was placed over the metatarsal region. The patient’s body temperature was monitored with a rectal thermometer and maintained between 36.7o and 37.4oC (98.1o and 99.3oF) throughout the procedure with a convective air warming system. Lactated Ringer’s solution was administered at a rate of 10 mL/kg/h (4.5 mL/lb/h), IV.

Monitoring: The dog was mechanically ventilated at a rate of 13 breaths/min, and end-tidal partial pressure of CO2 was maintained between 45 and 50 mm Hg. Heart rate remained within a clinically acceptable range during anesthetic maintenance (Figure 1) and was similar to rates reported for dogs anesthetized with isoflurane and a constant rate infusion of morphine. Systolic arterial pressure, measured indirectly with the oscillometric blood pressure monitor, ranged from 79 to 92 mm Hg, diastolic arterial pressure ranged from 25 to 35 mm Hg,and mean arterial pressures < 60 mm Hg represent hypotension. The gas anesthetic isoflurane Stimulation of the oral cavity by the attending dentist did not increase arterial blood pressure measurements. The attending dentist performed an infraorbital nerve block with bupivicaine (1 mg) to provide adjunctive analgesia during the dental procedure. The procedure continued uneventfully until a small amount of bleeding was seen originating from the pulp canal. The attending dentist dabbed a dilute solution of epinephrine (1:30,000) onto the pulp cavity in an attempt to stop the bleeding vessel. Within 1 minute, the heart rate, which had ranged from 70 and 78 beats/min prior to this time, increased to 155 beats/min and mean arterial pressure decreased to 46 mm Hg (the change shown in Figure 1 at C).

You will be asked to answer the following questions and the required case formulation framework will include these questions for you to outline your answers.

Create a list of the drugs in order of administration.

Create a list of relevant clinical observations.

Question 1: Create a problem list with the information you have been provided.

Using the software’s tools (identifying “Physiology” and “Mechanisms”), answer the following 3 questions, making sure you demonstrate physiological understanding of the action of these agents at the level or cardiac and vascular tissue and mechanistic (signal transduction) understanding at the cells involved with the tissues above.

Question 2: Which autononomic drug (s) (or classes of drugs) or neurotransmitter(s) by themselves would lead to the change shown in Figure 1 starting at point B?

Question 3: Which autononomic drug (s) (or classes of drugs) or neurotransmitter(s) by themselves would lead to the change shown in Figure 1 starting at point C?

Question 4: Which autononomic drug (s) (or classes of drugs) or neurotransmitter(s) when given with epinephrine would lead to the change shown in Figure 1 starting at point C?

Question 5: Develop 2 relevant questions you have identified as learning issues on this case, and list the questions, then find 2 references to help answer each question. List only the reference citation in the following short format First Author Last Name, First Initial, Year, Journal Title, Volume: First Page</Presenting Information>

<Discussion>

</Discussion>

<Contributors>Levent Dirikolu, DVM, PhD and Duncan C. Ferguson, VMD, PhD</Contributors>

<Framework>

<Framework Title> Framework Requested for Case</Framework Title>

<Framework Entry>F|0|Drugs Used in Order of Administration|</Framework Entry>

<Framework Entry>F|0|Relevant Clinical Information (History, PE, Lab)|</Framework Entry>

<Framework Entry>Q|0| Question 1: Problem List|</Framework Entry>

<Framework Entry>A|1| Answer|</Framework Entry>

<Framework Entry>Q|0| Question 2: Which autononomic drug (s) (or classes of drugs) or neurotransmitter(s) by themselves would lead to the change shown in Figure 1 starting at point B? |</Framework Entry>

<Framework Entry>A|1| Answer|</Framework Entry>

<Framework Entry>P|1|Physiology |</Framework Entry>

<Framework Entry>M|1|Mechanism |</Framework Entry>

<Framework Entry>Q|0| Question 3: Which autononomic drug (s) (or classes of drugs) or neurotransmitter(s) by themselves would lead to the change shown in Figure 1 starting at point C?|</Framework Entry>

<Framework Entry>A|1| Answer|</Framework Entry>

<Framework Entry>P|1|Physiology |</Framework Entry>

<Framework Entry>M|1|Mechanism |</Framework Entry>

<Framework Entry>Q|0| Question 4: Which autononomic drug (s) (or classes of drugs) or neurotransmitter(s) when given with epinephrine would lead to the change shown in Figure 1 starting at point C?|</Framework Entry>

<Framework Entry>A|1|Answer|</Framework Entry>

<Framework Entry>P|1|Physiology |</Framework Entry>

<Framework Entry>M|1|Mechanism |</Framework Entry>

<Framework Entry>Q|0| Question 5: List 2 Learning Issues|</Framework Entry>

<Framework Entry>L|1|Learning Issue 1 |</Framework Entry>

<Framework Entry>R|2|Relevant Reference 1 |</Framework Entry>

<Framework Entry>R|2|Relevant Reference 2|</Framework Entry>

<Framework Entry>L|1|Learning Issue 2 |</Framework Entry>

<Framework Entry>R|2|Relevant Reference 3 |</Framework Entry>

<Framework Entry>R|2|Relevant Reference 4 |</Framework Entry></Framework>

<Reference Formulation Available/>

<Can Copy Reference Formulation/>

<Reference Formulation>



</Reference Formulation>

<Self-Assessment Required/>

<No Edits When Finalized/>

<Questions>

</Questions>