

# **PREANESTHETIC EVALUATIONS & ECG**

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*"If you don't look, you don't see"*

## **PREANESTHETIC EVALUATIONS & PREPARATIONS**

### **Introduction**

- The preanesthetic examination or evaluation will influence greatly on the dose and choice of the premedicants, induction agents and maintenance agents as well as selection of anesthetic techniques.
- Thorough patient evaluation and preparation will improve patient safety and ensure successful anesthetic outcome.

### **Preparation of the patient**

#### **Food withholding time**

- Varies between species
- Dogs and cats : usually 12 hours and minimum of 6 hours
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## **Venous access**

- Placement of intravenous catheter facilitate IV administration of induction agents, and also minimize the extravascular injection of irritant agents such as thiopental sodium.
- For dogs and cats 20 - 22 G, 1 - 1.5 inch long are most commonly used, and for large animals 12 – 14 G of 3 - 4 inch long are most commonly used.

## **Items you need to prepare on a tray for a cat presented for general anesthesia at the BVMTH**

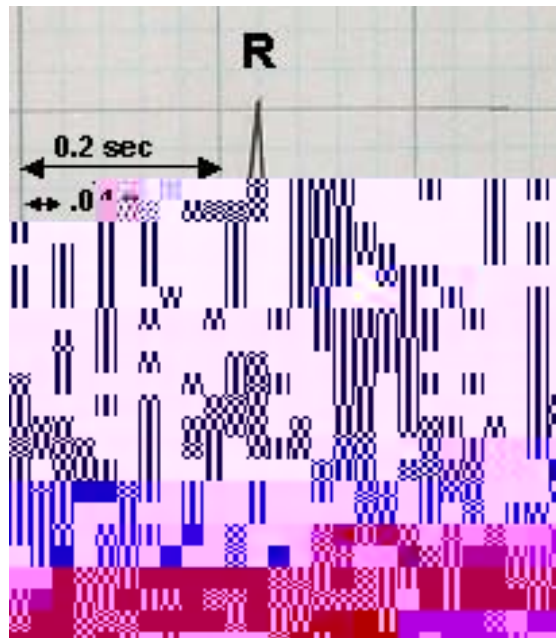
- Three ET tubes (one that would fit best, each of smaller and larger)
- Eye lube (ophthalmic ointment for eye lubrication)
- Gauze roll bandage
- One inch and half inch tapes
- Stylet
- Two to three heparinized saline flush in 3 ml syringe
- Laryngoscope and blades (size 1 and 2)
- Cuff syringe
- 4 x 4 gauze pad
- K-Y jelly
- Lidocaine 2 % 0.25 ml in TB syringe
- Two catheters 20 - 22 G, 1 – 1.5 inch long
- Injection cap
- Needles of varying size (20 G x 1”, 22 G x 1 “)
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- Remember there is no safe anesthetic agent but only safe anesthetist, so ensure every effort to minimize overall risk based on your evaluation and plan.

## ELECTROCARDIOGRAPHY

### Electrocardiogram

- ECG is recommended for dogs and cats over 7 years old prior to general anesthesia as part of preanesthetic work-up to screen underlying systemic diseases and abnormalities.
- Graphic recording of electrical potentials produced by cardiac muscle during different phases of the cardiac cycle



### ECG paper chart

- @ 25 mm/sec
  - one small square; 0.04 sec
  - five small squares; 0.2 sec
- @ 50 mm/sec
  - one small square; 0.04 sec
  - five small squares; 0.2 sec

### Five physiologic properties of the heart

- Automaticity
- Excitability



- Record a brief tracing at 50 mm/sec for ease of assessment of P-QRS-T waveforms
- Observe the following during the ECG recording
  - Whether the top and bottom of the waveform are all seen
  - Adjust the alignment as appropriate
- Decrease the sensitivity to  $\frac{1}{2}$  cm = 1 mV if QRS complexes go off the paper
- Increase the length of the trace if arrhythmia is present
- R waves should be positive in lead I if negative, check the lead wires to determine whether they are attached to the correct limbs. If correct, then a true abnormality exists.

## **Canine ECG normal values**

### **Rate**

- 70 to 160 beats/ min for adult dogs

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## **T wave**

- Can be positive, negative, or diphasic
- Not greater than  $\frac{1}{4}$  amplitude of R wave

## **Q-T interval**

- Width: 0.15 to 0.25 sec ( $7\frac{1}{4}$  -  $12\frac{1}{4}$  boxes) at normal heart rate

# **Feline ECG Normal Values**

## **Rate**

- 120 to 240 beats/mm

## **Rhythm**

- Normal sinus rhythm
- Sinus tachycardia (physiologic reaction to excitement)

## **P wave**

- Width: maximum, 0.04 sec (2 boxes wide)
- Height: maximum, 0.2 mV (2 boxes tall)

## **P-R interval**

- Width: 0.05 to 0.09 sec ( $2\frac{1}{4}$  to  $4\frac{1}{4}$  boxes)

## **QRS complex**

- Width: maximum, 0.04 sec (2 boxes)
- Height of R wave: maximum, 0.9 mV (9 boxes)

## **S-T segment**

- No depression or elevation

## **T wave**

- Can be positive, negative, or diphasic; most often positive
- Maximum amplitude: 0.3 mV (3 boxes)





- Third-degree atrioventricular block
- Left bundle branch block
- Right bundle branch block

## **Interpreting Arrhythmias —the Simple Steps**

- Arrhythmias can be intimidating. Therefore, it is important that we find a simple approach for analyzing rhythm strips. Systematically following the five-step method outlined below has proven to be both simple and effective.

### **Step 1. Calculate the heart rate**

- Decide whether the heart rate is rapid, slow, or normal.

### **Step 2. Assess the rhythm**

- Scan the strip from left to right, noting if the R-R intervals are regular or irregular.
- A caliper is a handy tool for plotting P-P and R-R intervals.

R intervals —

- P waves may precede normal QRS complexes by different time spans.
- **Long P-R intervals**—indicate an AV conduction delay
- (1° AV block) Td ( )Tj EMC /LBody <</MCID 10 4>BDC /C2\_0 1 Tf -237.481