Pre-Anesthetic Cardiac Assessment

Decision Tree: Risk Stratification & Preparation for Cardiac Patients

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STEP 1: PATIENT PROFILING — Identify Risk Factors

HISTORY RED FLAGS	PHYSICAL EXAM FINDINGS	BREED PREDISPOSITIONS
• Cough or respiratory issues • Exercise intolerance • History of collapse/syncope • Known heart disease • High-risk diet (DCM)	• Murmur or gallop sound • Arrhythmia (tachy or brady) • Poor/weak pulses • Abnormal MM color • Abnormal lung sounds • Ascites	**Dogs:** Doberman, Boxer, Cavalier, Giant breeds (DCM) **Cats:** Maine Coon, Ragdoll, Persian (HCM) **Mini Schnauzer:** Sick sinus synd.

ANY RISK FACTORS IDENTIFIED?

NO → Proceed with standard anesthesia protocol	**YES** → Further workup recommended (see Step 2)

STEP 2: DIAGNOSTIC WORKUP — Select Based on Clinical Suspicion

TEST	WHEN TO USE	KEY FINDINGS
NT-proBNP	Screening for occult disease (good negative predictive value)	Elevated → investigate further Normal → likely no significant disease
Thoracic Rads	MVD staging (B1 vs B2 vs C) Assess for CHF	Cardiomegaly, pulmonary edema, pleural effusion
ECG	Arrhythmia detected on PE Predisposed breed	Identify rhythm, rate, conduction abnormalities
Echocardiogram	DCM-predisposed breeds Systolic dysfunction suspected	Contractility, chamber size, valvular disease severity
Electrolytes	All cardiac patients	Hypokalemia → arrhythmia risk Hyperkalemia → conduction issues

STEP 3: RISK STRATIFICATION — Assign Patient Risk Level

LOW RISK (ASA 2)	MODERATE RISK (ASA 3)	HIGH RISK (ASA 4-5)
• HCM cats: asymptomatic, mild • MVD dogs: Stage B1/B2 • Arrhythmias: controlled → Standard monitoring → Use familiar anesthetics	• HCM cats: moderate, LA enlarged • MVD dogs: Stage C (controlled) • Boxers: ARVC on treatment • Occult DCM → Enhanced monitoring → Drug selection critical	• Severe HCM / active CHF • Unstable MVD / active CHF • Severe DCM • Uncontrolled arrhythmias → Elective: postpone → Emergency: max support

Intra-Anesthetic Arrhythmia Management

Decision Tree: Identification, Assessment & Treatment Under Anesthesia

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ARRHYTHMIA DETECTED — TREAT OR MONITOR?

QUESTION 1: Could it degenerate into a **FATAL ARRHYTHMIA?**	**QUESTION 2:** Is there **HEMODYNAMIC COMPROMISE?**
• V-tach → V-fib (YES) • Fast rate >160-180 bpm (YES) • R-on-T phenomenon (YES) • Severe bradycardia → asystole (YES) • AIVR rate <160 bpm (NO)	• Hypotension present? (YES) • Poor perfusion / pale MMs? (YES) • Weak pulses? (YES) • Normal BP + good pulses? (NO)
YES to either → TREAT	**NO to both → MONITOR**

TREATMENT PROTOCOLS BY ARRHYTHMIA TYPE

ARRHYTHMIA	FIRST-LINE TREATMENT	ADDITIONAL STEPS
VENTRICULAR TACHYCARDIA (rate >160-180)	Lidocaine 2-4 mg/kg IV (Dogs) Lidocaine 0.2-0.5 mg/kg IV (Cats - sensitive!)	• If response: start CRI • Check K+ and electrolytes • No response: Procainamide or MgSO■ over 10-15 min
BRADYCARDIA / SINUS ARREST (rate <50 or pauses)	Atropine 0.02-0.04 mg/kg IV or Glycopyrrolate 0.01 mg/kg IV	• Reduce/stop inhalant • Check K+ (hyperkalemia?) • No response: temporary pacing • Abort procedure if severe
SVT / ATRIAL TACHYCARDIA (rate 250-300+)	Vagal maneuver first (ocular pressure, carotid massage)	• If no response: Diltiazem 0.1-0.25 mg/kg IV slowly • Or Esmolol 0.25-0.5 mg/kg IV • Reduce inhalant
2° or 3° AV BLOCK	Atropine response test (Check if vagal or structural)	• If vagal: Atropine/Glyco • If structural: temporary pacing • 3° block: requires pacemaker

RHYTHMS TO MONITOR (Usually Do NOT Require Treatment)

Sinus Arrhythmia	Normal vagal tone - sign of health	No treatment
AIVR (rate <160)	Ventricular but slow; self-resolving	Watch for acceleration → V-tach
Single VPCs/APCs	Do not increase sudden death risk	Draw up lidocaine; be ready
Mild Bradycardia (>50)	If pulses good, no pauses	Watch for progression
AV Dissociation (normal rate)	Anesthetic-induced; usually resolves	Monitor; resolves on waking