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Part of Improve International

Deep Dives

Cardiovascular Medicine

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Learning Objectives:

1. Approach to Cardiovascular Disorders

- a. Understanding of the domains of clinical questions
- b. Ability to take a detailed clinical history and complete a thorough physical examination with an understanding of the importance of specific details
- c. Understanding of the use and limitations of diagnostic testing
- d. Ability to identify and select appropriate diagnostic tests based on physiological principles and clinical questions
- e. Understanding of the challenge of acquired cardiovascular disease as a common asymptomatic comorbidity with different disorders e.g. coughing in dogs with heart murmurs
- f. Ability to explain the pretest probability of cardiovascular disorders

2. Cardiovascular Laboratory Testing

- a. Knowledge of the use of routine laboratory tests in cardiovascular disease
- b. Knowledge of the use of cardiac biomarkers, including indications and limitations

3. Cardiac and Thoracic Vascular Radiology

- a. Knowledge of the normal cardiovascular anatomy of the canine and feline thoracic radiograph
- b. Ability to recognise evidence of congestive heart failure and cardiomegaly on thoracic radiographs

4. Electrocardiography

- a. Knowledge of how the electrocardiogram is generated
- b. Ability to acquire diagnostic electrocardiograms
- c. Ability to accurately interpret electrocardiograms

5. Echocardiography

Comprehensive diagnostic echocardiographic examinations require prolonged on-the-job training (residency) and experience gained by performing echocardiography every day. These skills are not possible to acquire without training

- a. Understanding of the indications and limitations for echocardiography with emphasis on clinical problem-solving
- b. Knowledge of the common uses and pitfalls of Point-of-Care Ultrasound (POCUS)
- c. Knowledge of how the 2D echocardiogram can be used to answer questions in acquired cardiac disease: myxomatous mitral valve disease, feline cardiomyopathies, dilated cardiomyopathy, pericardial disease and cardiac neoplasia
- d. Understanding of the principles of doppler ultrasound

6. Cardiovascular Therapeutics

- a. Knowledge of the mechanisms of action, indications and use of the following therapeutics:
 - i. Diuretics
 - ii. Pimobendan
 - iii. ACE-inhibitors
 - iv. Vasodilators
 - v. Inotropes
 - vi. Anti-arrhythmics

7. Cardiovascular Emergencies

- a. Understanding of the pathophysiology of congestive heart failure and how it relates to clinical presentation of these patients
- b. Knowledge of the management of congestive heart failure: immediate priorities, treatment of acute congestive heart failure, therapeutic goals and chronic treatment including rational re-examination
- c. Knowledge of the presentation, diagnosis, therapy and prognosis for feline arterial thromboembolism (FATE)
- d. Understanding of the causes and pathophysiology of pericardial effusion and how they relate to clinical presentation
- e. Knowledge of procedure for pericardiocentesis
- f. Ability to identify and manage common cardiac arrhythmias

8. Acquired Cardiovascular Disorders

- a. Knowledge of the diagnostic approach and management of myxomatous mitral valve disease in dogs, including staging and the use of evidence-based guidelines
- b. Knowledge of the diagnostic approach and management of feline cardiomyopathies
- c. Knowledge of presentation and cardiovascular screening for dilated cardiomyopathy in dogs
- d. Knowledge of the presentation and diagnosis of endocarditis
- e. Understanding of the common types of cardiac neoplasia

9. Congenital Cardiovascular Disease

- a. Knowledge of the presentation and progression of congenital cardiovascular diseases
- b. Understanding of decision making in puppies and kittens presenting with heart murmurs on whether further investigation is warranted
- c. Understanding of echocardiographic approach to the investigation of congenital heart disease
- d. Knowledge of the most common types of congenital cardiovascular disease: patent ductus arteriosus (PDA), pulmonic stenosis, aortic stenosis and ventricular septal defects