

CLIN*6380 – Electrocardiology and Arrhythmogenesis

Winter 2018 – Tuesday 8-9 (ECG rounds) and Friday 8-9:30 (lecture series), room 1412

Objectives

1. Explore the anatomy, electrophysiology, and pathophysiology related to the cardiac conduction system and electrical activity of the heart
2. Investigate and explain the mechanisms of arrhythmogenesis, including impaired conduction, abnormal automaticity, reentry, triggered activity
3. Interpret a variety of ECGs from veterinary patients
4. Investigate specific arrhythmic disorders in veterinary species
5. Compare, contrast, and select appropriate anti-arrhythmic drugs and describe their mechanism of action
6. Gain familiarity with interventional anti-arrhythmic solutions

Course Schedule

Date	Topic	Readings	Presenter
Jan 12	Cardiac Ion Channels and Action Potentials	Katz Physiology, Ch. 13 and 14	O'Sullivan
Jan 19	Anatomy and Function of the Cardiac Conduction System		Fonfara
Jan 26	Mechanisms of Arrhythmogenesis	Braunwald's Heart Disease, Ch. 33 Clinical Arrhythmology, Ch. 1	O'Sullivan
Feb 2	Mechanisms of Arrhythmogenesis	Braunwald's Heart Disease, Ch. 33 Clinical Arrhythmology, Ch. 1	O'Sullivan
Feb 9	Electrocardiography		Fonfara
Feb 16	Fibrillation and defibrillation		Bersenas
Feb 23	Tachyarrhythmias	Braunwald's Heart Disease, Ch. 37	O'Sullivan
Mar 2	Tachyarrhythmias	Braunwald's Heart Disease, Ch. 37	O'Sullivan
Mar 9	Bradyarrhythmias		Fonfara
Mar 16	NO CLASS		
Mar 23	Anti-Arrhythmic Drugs		Fonfara
Apr 2	Pacemaker Therapy and Other Interventions		O'Sullivan
Apr 6	Student presentations		Grad students
Apr 13	Examination		

*In addition, attend ECG rounds every Tuesday, 8-9, room 1412

Expectations

Course participants are expected to:

1. Attend the weekly lecture sessions and participate in discussions.
2. Attend weekly ECG rounds and participate in ECG interpretation.
3. Review the recommended readings prior to attending the session.
4. Present a 20-minute presentation on an arrhythmic disorder of choice relevant to veterinary species, covering (if applicable) pathophysiology, etiology, genetics, cellular arrhythmic mechanisms, clinical presentation, clinical course, and therapy
5. Take the final written examination.

Evaluation

Attendance and participation in ECG rounds – 20%

Presentations – 20%

Final examination – 60%

Course Coordinator

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Readings

Katz AM. Physiology of the Heart, 5th edition. Lippincott Williams & Wilkins, 2011.

Chapter 13 – Cardiac Ion Channels

Chapter 14 – The Cardiac Action Potential

Mann, Zipes, Libby, and Bonow, eds. Braunwald's Heart Disease: A Textbook of Cardiovascular Medicine, 10th edition. Elsevier Saunders, 2015.

Chapter 33 – Genesis of Cardiac Arrhythmias: Electrophysiologic Considerations

Issa, Miller, and Zipes, eds. Clinical Arrhythmology and Electrophysiology: A Companion to Braunwald's Heart Disease. Elsevier Saunders, 2009.

Chapter 1 – Electrophysiologic Mechanisms of Cardiac Arrhythmias

Other provided weekly by course instructors