

Avian electrocardiography: a simple diagnostic tool

Opinion

In veterinary medicine, avian cardiology is one of the previously neglected and presently developing areas in India. Until the heart decompensates, cardio vascular diseases are undetectable in birds. The electrocardiography is one of the non-invasive and cost-effective procedures to detect the heart rate, detect arrhythmias, cardiac chamber enlargement, and electrical conductance abnormalities.¹ Much literature is available on the ECG in pet, farm animals and recently in avian species.²⁻⁵ Clinical examination is the primary assessment to suspect the cardiac involvement and started from the visualization of the breathing pattern, auscultation of thorax and heart for abnormal findings.⁶

For regular electrocardiography analysis of birds, ECG machine with a speed above the 50mm/sec needs to select. If the speed of the machine at slower speeds the ECG waveforms are too close together and it is difficult to analysis.⁵ While recording the ECG, needle electrodes placed should be placed subcutaneously, onto which the alligator clips are attached. In few birds, directly alligator clips alone can be attached to the birds. To prevent the artifact and skin damage, application of gel is recommended while recording ECG.⁴ Anaesthesia is not recommended while tracing the electrocardiography unless required. It is always advised to collect the ECG without any anaesthesia which will be facilitated during the interpretation. In electrocardiography, most of the birds show the inverted QRS wave in lead II which indicative of negative mean electrical axis. To record the regular parameters standard bipolar limb lead II is considered as the standard lead for analysis. The morphology of P wave, PR-interval, QRS complexes, ST-segment, T wave, QT-interval and U wave were analyzed in lead II^{4,7} (Figure 1).



Figure 1 Electrocardiography in the apparently healthy bird (Lead II).

Most common recordable avian electrocardiography abnormalities including:^{7,8}

- a. Sinus tachycardia
- b. Sinus bradycardia
- c. Sinus arrhythmia
- d. Atrial fibrillation
- e. Atrial flutter
- f. Sinus arrest
- g. Sinoatrial block
- h. Right bundle branch block

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- i. Left bundle branch block
- j. Wandering pacemaker
- k. Atrial tachycardia
- l. Atrio ventricular dissociation
- m. Supra ventricular tachycardia
- n. Ventricular premature contractions
- o. Ventricular tachycardia
- p. Ventricular fibrillation
- q. Ventricular flutter
- r. First-degree heart A-V block
- s. Second-degree heart A-V block

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Conflict of interest

The author declares no conflict of interest.

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