ECG Interpretation for Primary Care Online Course

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Learning to read and confidently interpret an ECG is a valuable skill for assessing and treating patients with a wide range of acute presentations including chest pain, syncope, stroke and shortness of breath.

In this course we introduce an easy to learn approach to ECG interpretation that allows the clinician to quickly identify clinically significant findings such as acute myocardial ischaemia, arrhythmias, conduction block and serious biochemical disorder. The approach is highly practical and can be immediately applied to the clinical care of the emergency patient.

Learning Outcomes:
At the completion of the workshop the participants should be able to:

1. Prioritise the approach to evaluating the 12 lead ECG in the acutely unwell patient
2. Discriminate cardiac arrythmias associated with absent P waves
3. Outline on the ECG features indicating disturbed cardiac conduction
4. Differentiate the ECG findings associated with ST elevated myocardial infarction and Acute Coronary Syndrome

Summary of the e-Learning Program
The e-learning is interactive and requires the clinician to consider a range of the clinical problems and scenarios and provide a response. At the end of each topic a summative quiz is used to evaluate learning and understanding of the topic material. There are four topics with a total course time of 8.5 hours.

The four topics are
1. Introduction to a clinically based approach to ECG Interpretation
2. Why the P wave is often the clue to arrhythmias
3. How the QRS is useful to clinical practice
4. How to avoid missing the ECG clues to myocardial ischaemia

Outline of the Program

Pre – Course Quiz

1. Clinical Approach to ECG Interpretation

Module Summary: In this module we introduce a three step approach to reading the ECG that will allow you to quickly "scan" an ECG to identify changes that provide a clue to serious underlying disease such as acute myocardial ischaemia, life threatening biochemical abnormalities and clinically significant arrhythmias. Subsequent modules explore each of the three steps in detail with examples to allow you to practice and become proficient in recognising ECG abnormalities associated with serious illness.

Interaction/Assessment:

- Video eTutorial : ECG Interpretation I Primary Care
- Interactive Clinical Casebook: Introduction to ECG Interpretation (Formative assessment: 90 mins)
- Topic Quiz – Introduction to ECG Interpretation (Summative assessment: 30 mins)

2. Step 1: Examining the the P wave – a clue to arrhythmias

Module Summary: The ECG waveform begins with the P wave. The P wave reflects depolarisation of the atrium. Absence of the P wave or the presence of too many P waves provide vital clues to the presence of arrhythmias indicating disruption to the normal process of depolarisation in the heart.

Interaction/Assessment:

- Interactive Clinical Casebook: Examining the P wave – the missing P wave and too many P waves (Formative assessment: 90 mins)
- Topic Quiz – Pwave (A) (Summative assessment: 30 mins)
- Topic Quiz – P wave (B) (Summative assessment: 30 mins)

3. Step 2: Examining the QRS complex – a clue to conduction delay / arrhythmias

Module Summary: The QRS complex reflects depolarisation of the ventricles and normally has a width of less than 0.12 secs (equivalent to less than 3 small squares). The QRS complex provides us with information about the heart rate and about abnormal conduction through the electrical wiring of the heart (referred to in anatomical terms as the His-Purkinjie system).

Interaction/Assessment:

- Interactive Clinical Casebook: QRS Complex (Formative assessment: 60 mins)
- Topic Quiz – QRS Complex (A) (Summative assessment: 30 mins)
- Topic Quiz – QRS Complex (B) (Summative assessment: 30 mins)

4. Step 3 : Examining the ST segment / T wave – a clue to ischaemia

Module Summary: The ST / T wave component of the ECG waveform reflects repolarisation of the ventricle. Abnormalities of the ST segment commonly result from abnormal depolarisation of the ventricle and injury or inflammation of myocardial tissue due to myocardial ischaemia or acute pericarditis. ST elevation or depression is by far the most important diagnostic feature on the ECG for acute myocardial ischaemia.

Interaction/Assessment:

- Interactive Clinical Casebook: Examining the ST segment / T wave (Formative assessment: 90 mins)
- Topic Quiz – ST/T wave (A) (Summative assessment: 30 mins)
- Topic Quiz – ST/T wave (B) (Summative assessment: 30 mins)

5. Final Post Course Assessment Quiz

Final Course Quiz – ECG Interpretation in Primary Care (Summative assessment: 30 mins)