ECG Workshop
Pattern recognition, Inductive-deductive mechanisms or both?

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Heart Rhythm Service
Queen’s University
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Conflict of Interest

- Unrestricted Grant (Bayer)
- Unrestricted Grant (Medtronic)
- Honorarium from Bayer, Medtronic, St Jude, Boehringer Ingelheim

Special thanks to IWAS Organizers to allow us to participate in this meeting
Eugene...wouldn’t be great if we run an ECG exam during IWAS?

Do it!

I need a Wi-Fi connection for 55 people and advertising to pre-register.....

Do it!

I need the expenses of my co-investigator covered, two rooms, a large pot of coffee, some extra computers...

Do it!

So, here we are...after fighting for months for this opportunity....
Route Map

1. AB to deliver a 30-40 min talk on ECG teaching strategies with 3+ examples
2. Coffee break 5 min
3. KQ to explain the dynamics of the New ECG digital tool (ANONYMOUS!!!)
4. ECG exam (timed out!) 30 min
Objectives

• To quickly review methods to learn ECG skills
• To review 3+ interesting ECGs
• To evaluate a new digital tool to assess ECG interpretation skills
How to teach electrocardiology?

1. No teaching method has been validated
2. No “specified skills” are required to become a teacher
3. No clear objectives are described in the curricula
4. No evaluation system has been designed so far
5. No strategy to avoid “erosion” has been implemented
How to teach electrocardiology?

**Strategies**

- Memory
- Associations
- Recollection
- Exposure

- Physiopathological understanding
- Algorithms
- Clinical vignettes/ scenarios
- Clinical practice
1. ECG is useful for diagnosis
2. ECG is useful to decide treatment
3. ECG is useful to understand electrophysiological mechanisms
4. ECG is useful for prognosis
Case #1

Hypothermia

- Osborne waves (J-point!!!)
- QRS widening
- Atrial arrhythmias
- QT Prolongation
1. Learn effects of cold over the conduction system
2. See gradual deterioration with lower temperatures
3. Find cases from clinical practice (effects of cooling in ICU, CABG, etc)
4. Discuss treatment (re-warming) and management of VF in this setting
Case #2

Ventricular Preexcitation

- Short PR
- Delta-waves / QRS widening
- Pseudo-infarct pattern (inferior leads)
1. Learn effects of AV accessory pathways on surface ECG
2. Algorithms to locate the accessory pathways
3. Learn arrhythmias associated with accessory pathways (WPW)
4. Plan your treatment accordingly (ie: invasive approach based on pathway location)

Ventricular Preexcitation

- Short PR
- Delta-waves / QRS widening
- Pseudo-infarct pattern (inferior leads)
Case #2 – Cont.

Narrow Complex Tachycardia

Regular

P before QRS

+ ST

- LAT

Saw tooth

AVNRT

JT

Irregular

No P waves

- P after QRS

Atrial Fibrillation

A. Flutter w/variab. con.

RP<PR

AVNRT

AVRT

RP>PR

Atypical AVNRT

Pattern Recognition

Inductive/deductive mechanisms
Case #3

ARVD

- Low voltage
- T-wave inversion V1 to V4
- Epsilon-wave in right precordial leads
1. Learn about major/minor criteria
2. Review physiopathology of ARVD (fatty/fibrous tissue replacing myocites)
3. Bring other modalities for diagnosis (MRI, ECHO, SAECG)
4. Review Fontaine leads placement
5. Plan your treatment accordingly (ie: AAD, ICD, etc)
CASE REPORT

The Use of Fontaine Leads in the Diagnosis of Arrhythmogenic Right Ventricular Dysplasia

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A  
Regular Leads  
Fontaine Leads

B  
Fontaine Lead Placement

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ANE 2014
Thanks for your attention!!!!