(PBL) Arrhythmias and Dysrhythmias: A Shocking Diagnosis

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Dr. Shahan earned his medical degree from the University of Nebraska Medical Center, Omaha, and completed his family medicine residency at Tripler Army Medical Center in Honolulu, Hawaii. After his residency, he spent four years in Alaska, providing full-scope primary care in remote and austere locations. He returned to academic medicine to pursue specialty training in hospital medicine. Currently serving as the program director for a family medicine hospitalist fellowship, he plans to continue to train family medicine hospitalists and to improve inpatient residency training for family medicine residents.
Learning Objectives

1. Practice applying new knowledge and skills gained from Arrhythmias and Dysrhythmias sessions, through collaborative learning with peers and expert faculty.

2. Identify strategies that foster optimal management of arrhythmias and dysrhythmias, within the context of professional practice.

3. Formulate an action plan to implement practice changes, aimed at improving patient care.

Associated Sessions

• Arrhythmias and Dysrhythmias: A Shocking Diagnosis
Case

You are working in a rural clinic that is 30 minutes to the closest ED. A 55 yo female presents with intermittent episodes of dizziness for the past week.

Case 1

• PMH:
  • CAD (CABG in 2015)
  • Hypothyroidism
  • COPD (FEV1 50%)

• Meds
  • Spiriva
  • Metoprolol XR 50 mg daily
  • Lisinopril 20 mg daily
  • Levothyroxine 100 mcg daily
  • Azithromycin 250 mg daily
Case 1

• SH:
  • Smokes 1 ppd for 40 years
  • No alcohol or drugs

Case

While in the exam room another episode occurs.
Case 1

- Exam
  - HR 180, RR 24, BP 100/50, 92% on RA, 98F
  - Mild distress
  - Diaphoresis
  - No peripheral edema
- Any other exam?

ECG courtesy of Ryan Flannigan, MD FAAP FACC
Case 1

• Now what?

Case 1

• Adenosine 6mg fails... so does 12mg

• Patient states “DON’T SHOCK ME!!”
Treatment of PSVT
Acute Management

• Vagal maneuver or adenosine (Class 1)
• Hemodynamically unstable
  • Synchronized cardioversion
• Hemodynamically stable
  • IV beta blocker, diltiazem, verapamil
  • Synchronized cardioversion


Case 1

• How would management change if this was her resting EKG?
Case

- You go round on your patient and when you enter the room the nurse runs in and states the telemetry shows this.
Case 1

• Now what?
• SVT?
• Monomorphic or polymorphic?
• Sustained?
Sustained VT

• **Procainamide** - In patients with hemodynamically stable VT, administration of intravenous procainamide can be useful to attempt to terminate VT (Class 2a)

• **Beta blockers** - In patients with polymorphic VT due to myocardial ischemia, intravenous beta blockers can be useful (Class 2a)

• **Amiodarone** - In patients with hemodynamically stable VT, administration of intravenous amiodarone or sotalol may be considered to attempt to terminate VT (Class 2a)

• **Verapamil** - In patients with a wide QRS complex tachycardia of unknown origin, calcium channel blockers (e.g., verapamil and diltiazem) are potentially harmful (Class 3 – Harm)


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Case 1

• Ablation?
• ICD?
Who gets ICD?

- Survivors of SCA
- VT with structural heart disease
  - i.e. HCM, Brugada, Valvular dx, NICM, ICM, many more...
- EF < 35 with class II or III HF
- EF < 30
- Life-expectancy of 1 year


HD 5

- Nurse gives your patient ondansetron and this happens...
HD 5

• Treatment?
Sustained VT

- Monomorphic?
  - Usually amiodarone

- Polymorphic?
  - Prolonged QT? -> Torsades de Pointes
    - Mag!!
  - No prolonged QT -> ischemia
    - Beta blocker vs amiodarone

VT

- You can always use amiodarone
  - Unless it is Torsades!!

- You can actually use almost anything else too
  - Except non-DHP Ca Channel blockers
Management of Ventricular Tachycardia

- Treat underlying disease
- Beta blockers improve mortality
- ICD placement in appropriate patients

HD 3

- Morning EKG now shows...
HD 6

• Now what?

• How would management be different with this EKG?
ECG courtesy of Ryan Flannigan, MD FAAP FACC
HD 7

• Patient now complains of intermittent episode of dizziness at rest. EKG during symptoms shows...

ECG courtesy of Ryan Flannigan, MD FAAP FACC
HD 7

- HR is now in the 30s and BP is 85/40. Now what?
- Pacemaker?

Treatment if symptomatic

- Atropine (likely won’t help high degree AV block)
- Transcutaneous pacing
- Dopamine
- Epinephrine
- Reversible causes
- Transvenous pacing
Case

• You start external pacing and the monitor shows pacer spike followed by QRS at rate of 70. Milliamps are at 20.

• BP is 85/40. Peripheral pulse rate is 35.

Bonus

ECG courtesy of Ryan Flannigan, MD FAAP FACC
11-year old with syncope and a family history of seizures
11-year old with syncope and a family history of seizures

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