PALPITATIONS

WHAT SHOULD MAKE OUR HEARTS GO ALL A-FLUTTER???

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DISCLOSURES:

- Relationships with financial sponsors:
  - Speakers Bureau/Honoraria:
    - Experienced/Senior Instructor for Heart and Stroke Foundation Canada for ACLS, PALS, BLS
    - Received payments from/Co-Founder of VITAL – not-for-profit organization providing teaching of ACLS/BLS within VIHA
- Potential for conflict(s) of interest:
  - May discuss guidelines as per HSF ACLS recommendations 2020

OBJECTIVES

TO REVIEW AND IDENTIFY HIGH RISK PRESENTATIONS OF PALPITATIONS

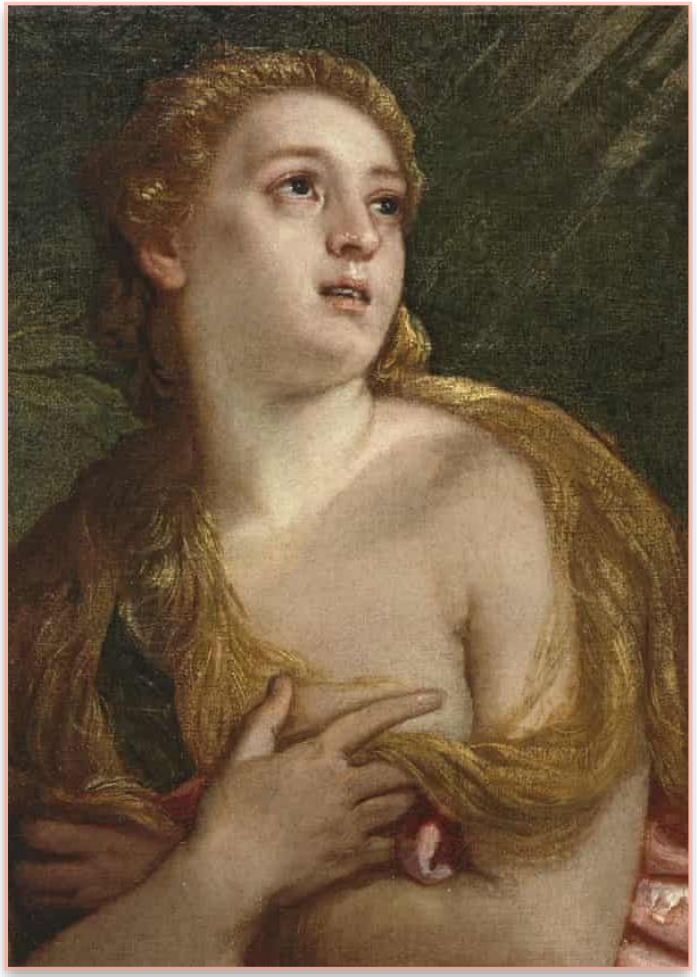
TO DEVELOP AN APPROACH TO STRATIFYING PALPITATIONS

TO REVIEW ECG CHARACTERISTICS OF HIGH RISK PRESENTATIONS

TO HAVE SOME FUN TALKING ABOUT SKIPPY HEARTS!!!

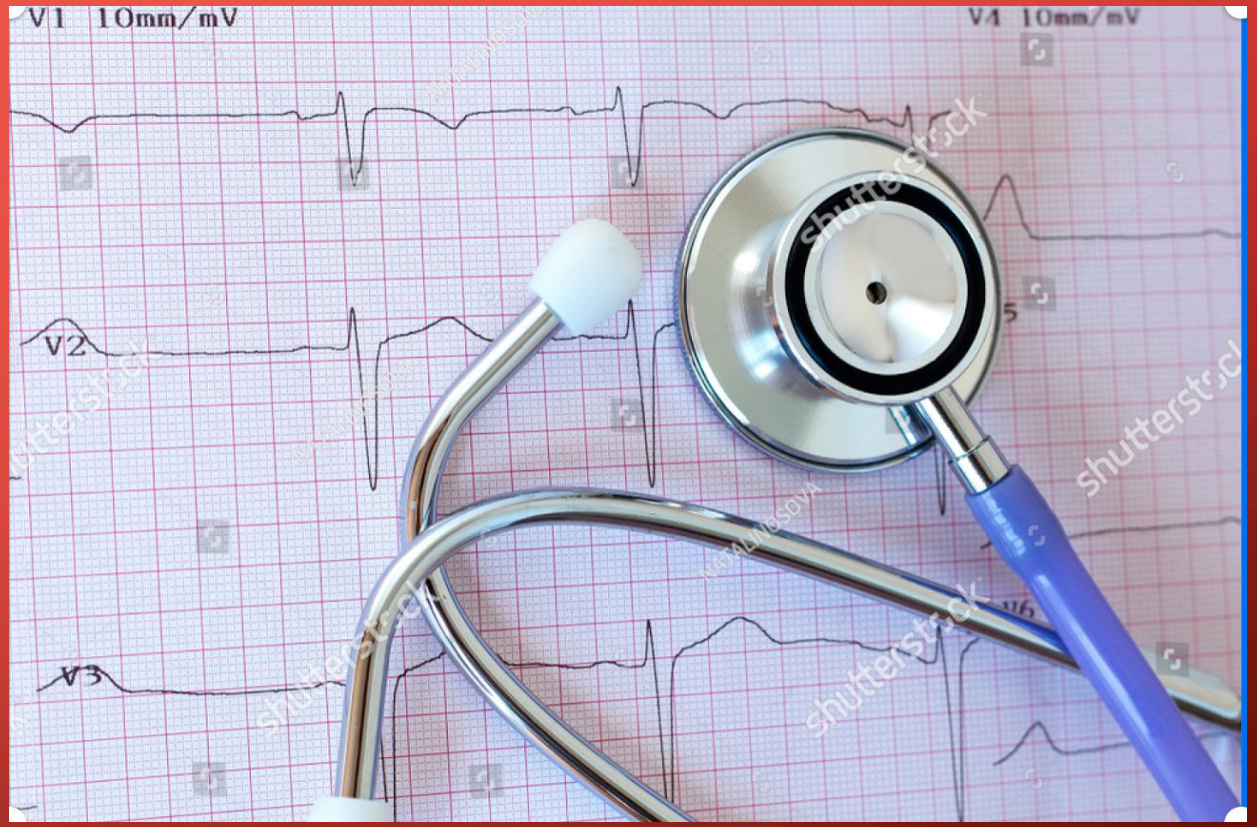
CASE #1

30 YEAR OLD FEMALE PRESENTING COMPLAINING OF "FEELING HER HEART BEATING HARD"



PALPITATIONS

- 15% of all presentations in the US to general care – Family practice, ER
- Only 30% linked to psych origins (anxiety, etc)
- 15% never have defined cause
- **50% have an identifiable medical reason**
  - **5% have a potentially life threatening arrhythmia or underlying precipitant!**



HIGH RISK……

WHO?

1. Age
2. Comorbidities
3. Family History
4. Iatrogenic/ Personal causes

WHICH?

1. Description
2. Work
3. Sleep
4. **Syncope**

WHAT?

1. Arrhythmia/Indicators present on ECG
2. Arrhythmia/Indicators not present on ECG

WHO?

AGE

- <35 vs >35

CO- MORBIDITIES

- Ischemia
- Valvular
- Thyroid
- Anemia
- Pulmonary

FAMILY HISTORY

- Atrial fibrillation
- Prolonged QT
- Sudden Death

WHO?

- Iatrogenic
  - Stimulants – Bronchodilators, etc
  - Withdrawal from meds – Psychiatric, B-Blockers
- Personal
  - Stimulants – cocaine, meth, nicotine, caffeine, energy drinks
  - OTC preparations – nasal sprays, cold meds
  - Herbal – ginseng, green tea
  - Anabolic steroids
  - Sleep

WHICH?

CASE #2

- 45 year old female with self-reported history of short-lived palpitations, not yet investigated or diagnosed, presents with syncopal episode while running around Elk Lake

WHICH?

(ARRHYTHMIA VS VISCERAL HYPERSENSITIVITY)

1. Description
   - Table 1
2. Sleep
   - PLR of 2
3. Work
4. **Syncope**

TABLE 2
Key Clinical Findings with Palpitations and Suggested Diagnoses

FINDING	*SUGGESTED DIAGNOSIS*
Single "skipped" beats	Benign ectopy
Feeling of being unable to catch one's breath	Ventricular premature contractions
Single pounding sensations	Ventricular premature contractions
Rapid, regular pounding in neck	Supraventricular arrhythmias
Palpitations that are worse at night	Benign ectopy or atrial fibrillation
Palpitations associated with emotional distress	Psychiatric etiology or catecholamine-sensitive arrhythmia
Palpitations associated with activity	Coronary heart disease
General anxiety	Panic attacks
Medication or recreational drug use	Drug-induced palpitations
Rapid palpitations with exercise	Supraventricular arrhythmia, atrial fibrillation
Positional palpitations	Atrioventricular nodal tachycardia, pericarditis
Heat intolerance, tremor, thyromegaly	Hyperthyroidism
Palpitations since childhood	Supraventricular tachycardia
Rapid, irregular rhythm	Atrial fibrillation, tachycardia with variable block
Palpitations terminated by vagal maneuvers	Supraventricular tachycardia
Heart murmur	Heart valve disease
Midsystolic click	Mitral valve prolapse
Friction rub	Pericarditis

NOTE: *The information in this table is based on clinical experience and not on the results of clinical trials.*

Am Fam Physician 2005 Feb 15;71 (4):743-750

WHAT?

(ABNORMAL ECG VERSUS NORMAL)

EASY

Bradycardias

Atrial Fibrillation

Atrial Flutter

SVT

Vtach

COMPLEX

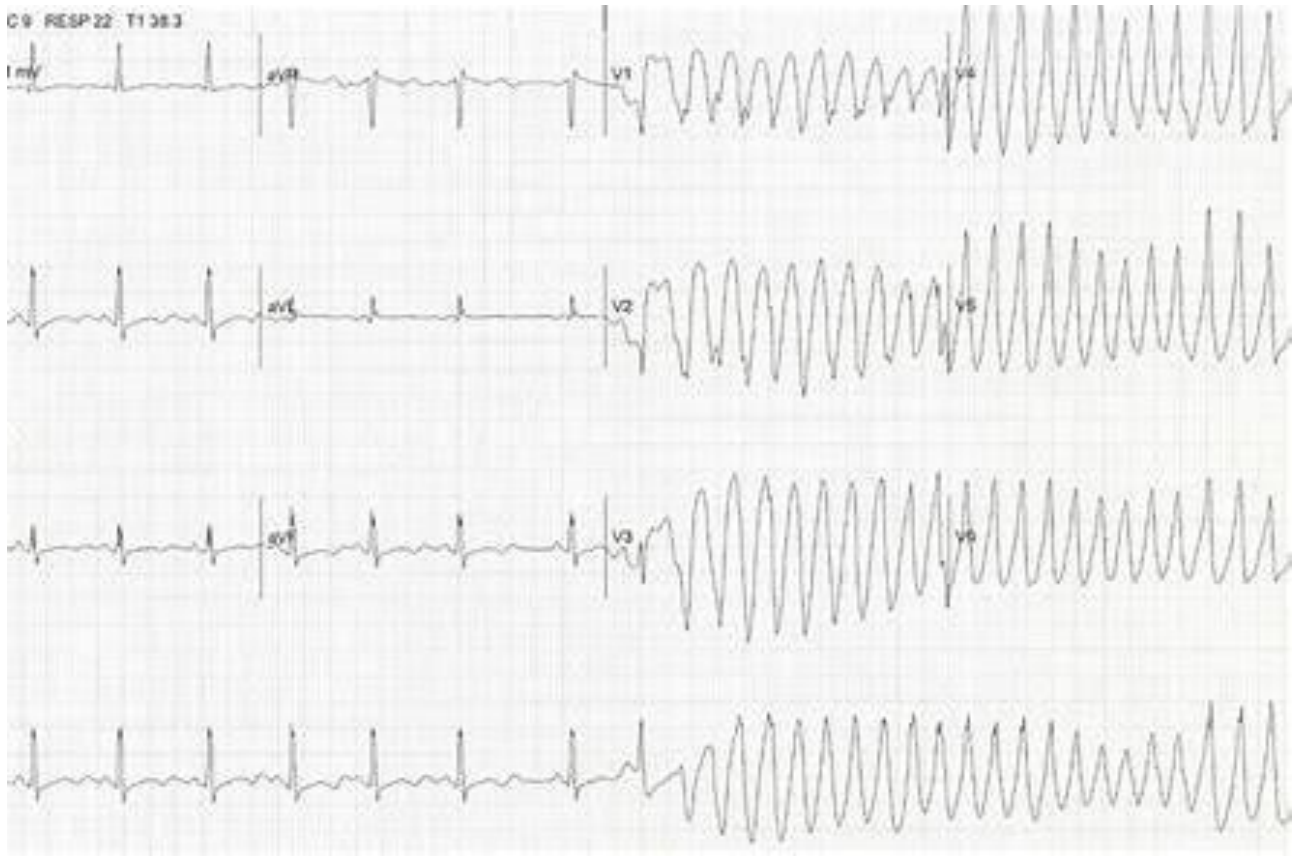
Prolonged QT

Delta wave/ Short PR

CRYPTIC

Brugada Syndrome

HOCM



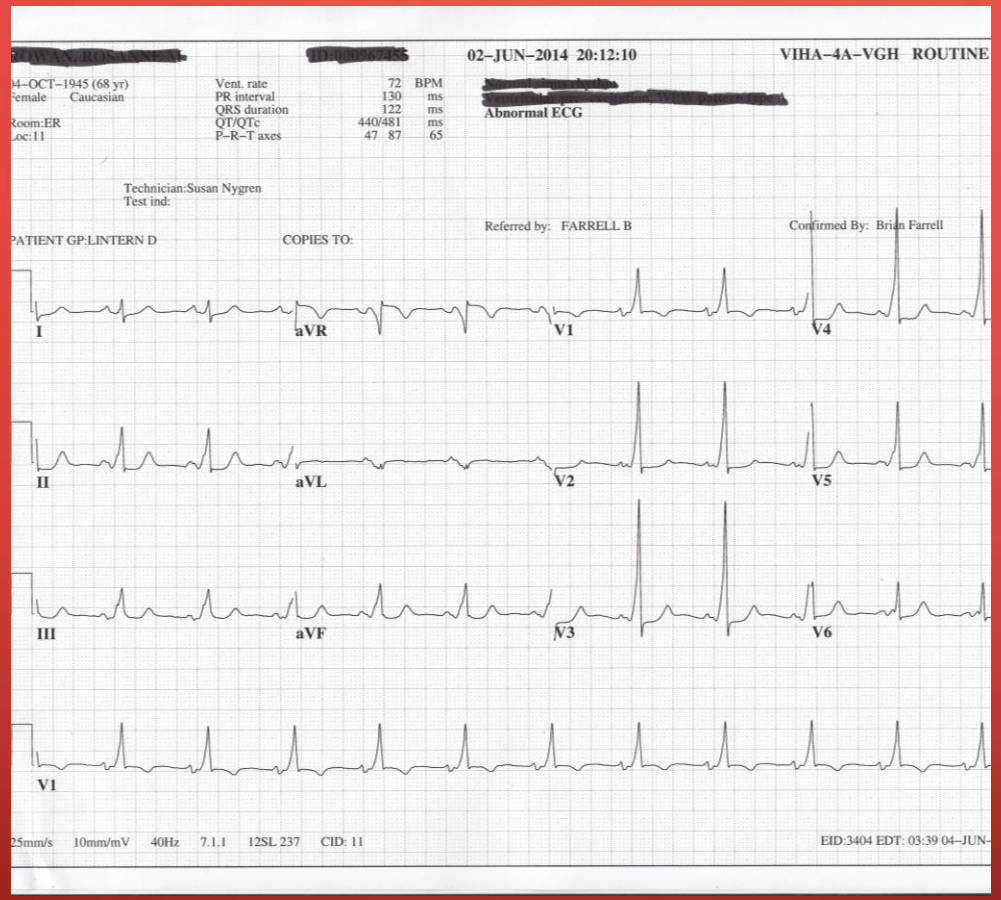
CASE #3

- 53 YEAR OLD MALE, WITH N/V/D, PRESENTS WITH EPISODES OF LIGHTHEADENESS AND HEART POUNDING
  - History of severe EtOH
  - On methadone
  - Recent diagnosis of pneumonia and prescribed moxifloxacin

COMPLEX…*(THE MACHINE TELLS YOU)….*

PROLONGED QT

- WEBSITE - CREDIBLEMEDS :: FOR HEALTHCARE PROVIDERS
- HIGH RISK MEDS – ANYTHING THAT IS ‘ANTI’
  - Antibiotics
  - Antidepressants
  - Anticonvulsants
  - Antipsychotics
  - Antiemetics
  - Antiarrhythmics



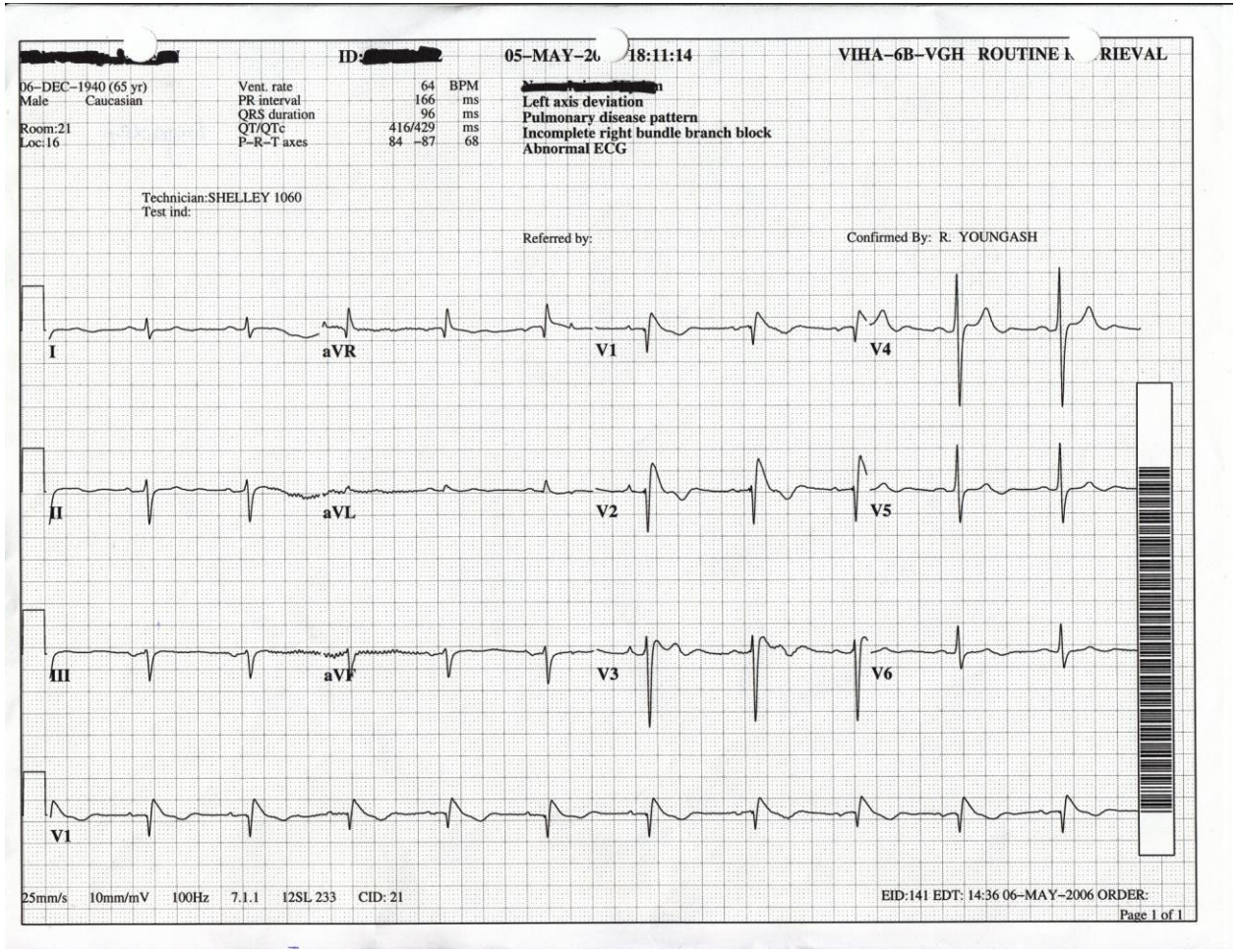
CASE #4

- 25 year old male who presented with palpitations and lightheadedness after smoking a joint with his girlfriend…

COMPLEX…*(THE MACHINE TELLS YOU)….*

DELTA WAVE/SHORT PR

- VARIETY OF ACCESSORY BUNDLE ARRHYTHMIAS
  - Most common/well known is WPW
  - Direct referral to cardiology – suggest to EPS cardiologist if possible through RACE or Pathways



CASE #5

- 65 year old male who was referred in from community for chest pain. On history, had a non-reported history of palpitations and a family history of sudden death

CRYPTIC…*(BRILLIANT DIAGNOSIS!!!)….*

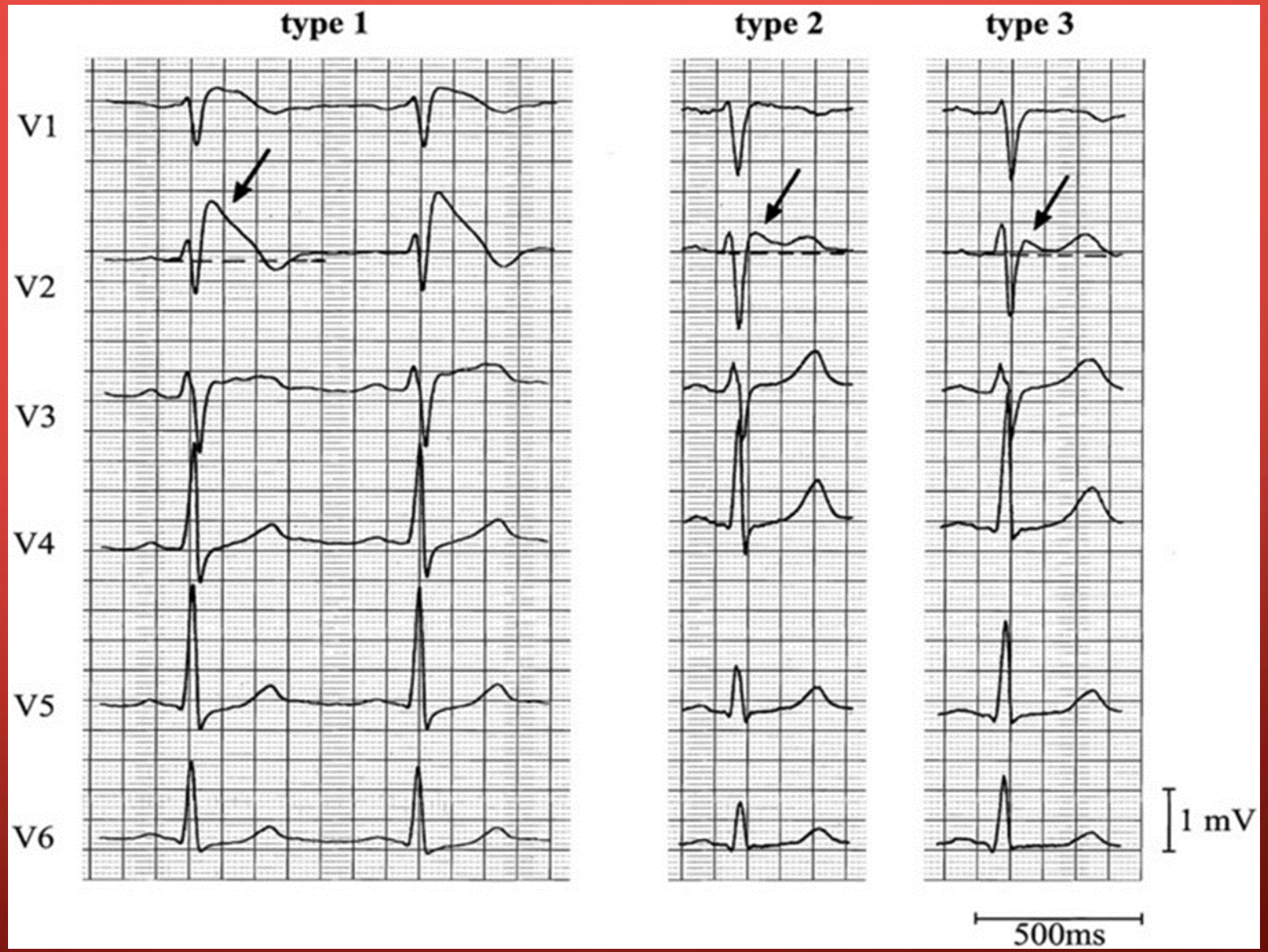
BRUGADA

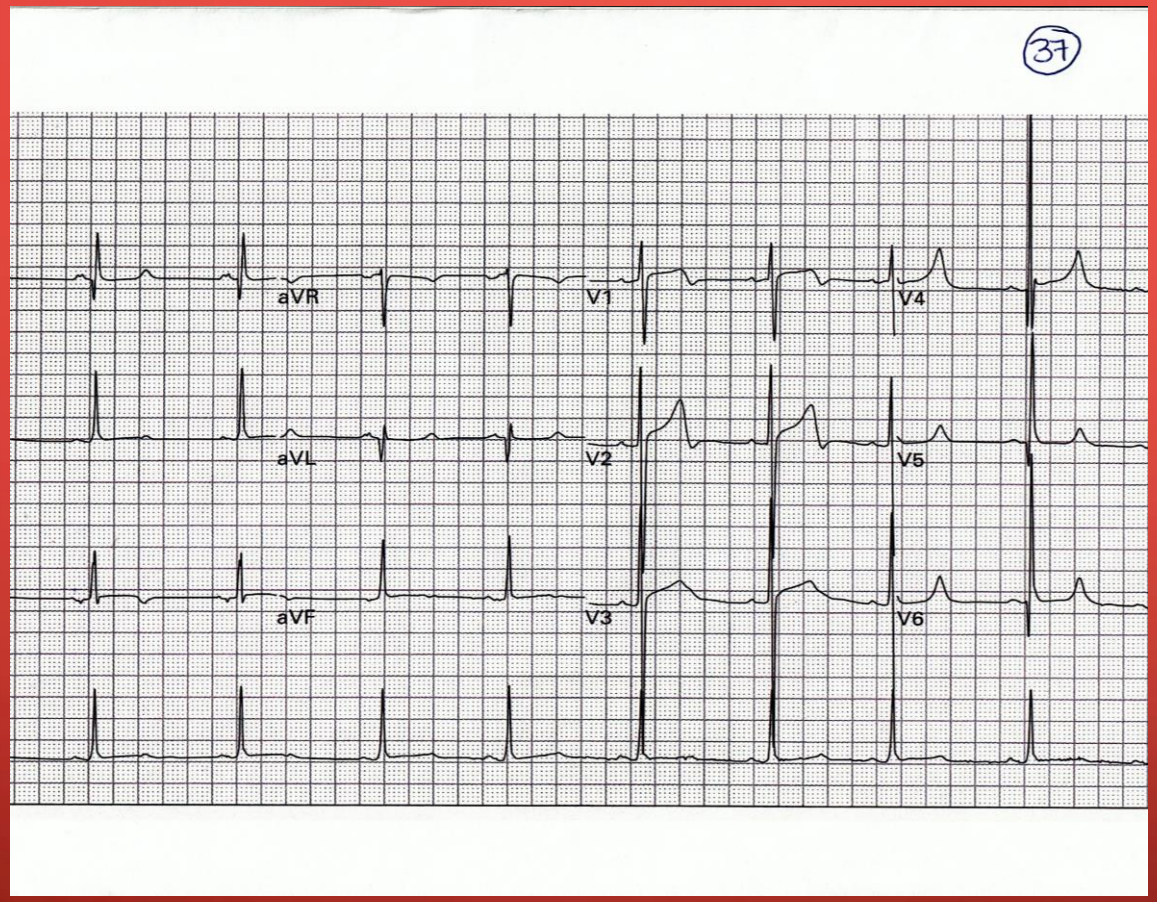
i) Up to 5% of all cardiac arrests; 10% MR per year

ii) Three forms of RBBB/ Incomplete RBBB with ST elevation in V1/V2

- Type 1 is the only potentially diagnostic ECG
- Type 2 and 3 – non-diagnostic but require EPS f/u and likely provocative testing

iii) Can present as syncope or near syncope


type 1
type 2
type 3
V1
V2
V3
V4
V5
V6
1 mV
500ms



CASE #6

- 18 yo presents to the ER in full cardiac arrest and unfortunately is un-resuscitatable.
- Had been in the process of work up for syncopal expisodes in the community and had had an outpatient ECG done but not yet seen

CRYPTIC…

HOCM

(HYPERTROPHIC OBSTRUCTIVE CARDIOMYOPATHY)

i) High voltage QRS Complexes with deep narrow Q waves in 1, aVL, V5, V6

ii) Prominant R waves in V1-V3

iii) “Needle” appearance

iv) Present with syncope

NORMAL ECG…..

NOW WHAT?

INVESTIGATIONS

1. Bloodwork

   CBC, Electrolytes including extended, TSH, B-HCG, ? D-dimer, ? Tox screen

2. ? Echocardiogram

AMBULATORY MONITORING

1. Holter - Worn for 24-48 hours. Best for patients with frequent symptoms or symptoms that are associated with activity (33%).
2. Event monitor - intermittent or continuous recording; patient activated (66%)
3. Loop recorders –internal event monitor; continuous; requires minor day surgery (100%)

REFERRAL

1. High risk
2. Persistant
3. Prolonged

TIPS AND TRICKS FROM THE ER TRENCHES

1. TAP THE RHYTHM
2. DRAW THE RHYTHM
3. THE DAMN APPLE WATCH/ FITBIT/ WHAT-EVER-YOU-CALL-THEM
   - Current AppleWatch Study - 419927 participants; industry sponsored
   - Pre-existing studies; sens of 93.7%; spec of 98.2% and 96.1% accuracy to detect AF.
4. OUTPATIENT IN-THE-POCKET ECG REQ

REFERENCES

AM FAM PHYSICIAN. 2017 DEC 15; 96 (12): 784-789

AM FAM PHYSICIAN. 2011 JUL 1;84 (1): 63-69

AM FAM PHYSICIAN. 2005 FEB 15; 71 (4): 743-750

WEBSITE: LIFE IN THE FAST LANE (ECGS)

WEBSITE: UP TO DATE