QUIZ 7th August 2019

1. List 6 cardiac causes of syncope.

***(C**an **B**rad **W**alk **V**ery **Q**uickly **H**ome)*

Complete HB

Brugada

WPW

Ventricular dysplasia (ARVD)

QT – long/short

HOCM

2. What is Brugada syndrome and what are the ECG findings associated with it.

Diagnosis = Brugada pattern on ECG and at least one of:

-syncopal episodes

-VF

-polymorphic VT

-sudden cardiac death in a relative < 45 years of age

-ST-segment elevation in family members

***Brugada syndrome** is responsible for up to 60% of cases of idiopathic VF.*

50% of patients with Brugada pattern have malignant arrhythmias.

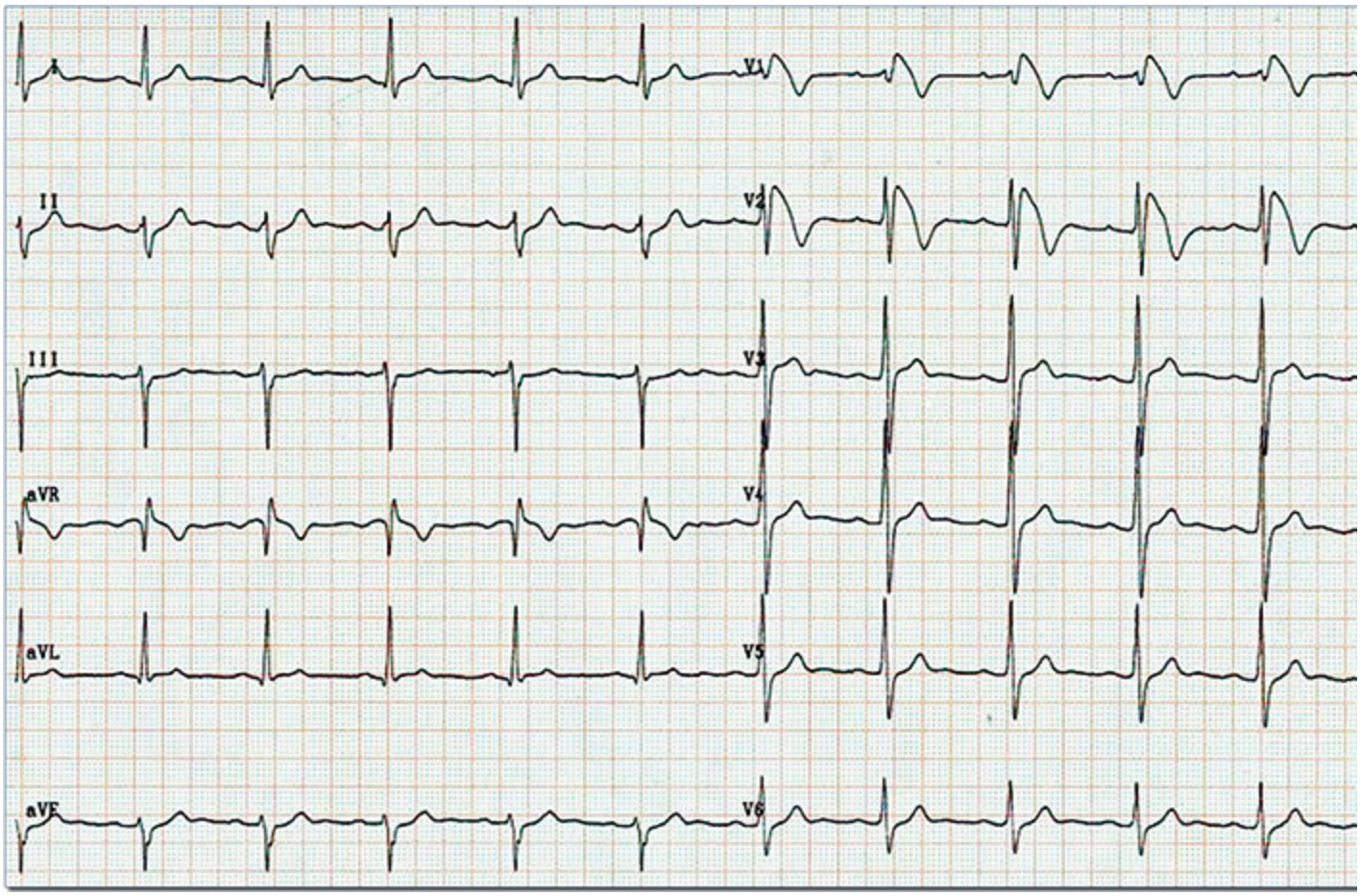
2 year death rate for missed diagnosis after ED presentation is approximately 30%.

Autosomal dominant inheritance. Defect of the sodium channel. More common in patients of southeast Asian origin and males. Average age at presentation is 30 years of age.

Brugada ECG features *may be transient and change over hours – days. 30% develop during a febrile episode. 70% are induced by medications esp sodium channel blocking agents.*

- *partial RBBB*
- *in leads V1-V3*
- *ST elevation ≥ 2mm (Type III is < 2mm)*
- *down sloping of the ST segments (Type I)*
- *T wave inversion*
- *saddle shaped ST segment (Type II)*
- *tall R wave in aVR*

Only Type I changes are considered diagnostic. Further testing is required for other types.



Elevated, downsloping ST segment in leads V1-2 and tall R wave in aVR – Type I. A repeat ECG at 48 hours was almost normal. (source – Dunn)

3. List 4 physiological and 4 anatomical changes associated with the third trimester of pregnancy that might be relevant in the assessment and management of a patient in her third trimester involved in a major trauma.

Physiological changes	**Anatomical changes**
Decreased FRC, high o2 consumption, respiratory alkalosis, increased respiratory rate	Narrow/oedematous airway, elevated diaphragm
Elevated heart rate, lower SBP, DBP, SVR and increased CO	Aortocaval compression by the gravid uterus
Stomach distension / delayed gastric empyting - aspiration risk	Bladder displacement into abdomen
Physiological anaemia with relatively increased blood volume	Increase in uterine size and flow

1. **Describe & Interpret the following ECG:**

p waves – present, regular, normal morphology

pr interval – normal duration, not depressed

QRS – narrow, normal duration, notch at the base of the s wave (Epsilon wave)

ST segment – 1mm STD in leads V2 & V3

T waves – inverted in inferior leads and V1 – V5

QT interval - < half the R-R

➔ *Arrhythmogenic RV dysplasia (ARVD)*

- *An inherited disorder associated paroxysmal VT and sudden death*
- *The ECG changes in ARVD include:*
    - *Epsilon wave (most specific finding, seen in 30% of patients)- see notes below*
    - *T wave inversions in V1-3 (85% of patients)*
    - *Prolonged S-wave upstroke of 55ms in V1-3 (95% of patients)*
    - *Localised QRS widening of 110ms in V1-3*
    - *Paroxysmal episodes of ventricular tachycardia with a LBBB morphology*

- *The epsilon wave is a **small positive deflection ('blip' or 'wiggle**') buried in the end of the QRS complex.*
- *Epsilon waves are caused by **postexcitation of the myocytes** in the right ventricle.*
- *Epsilon waves are the most characteristic finding in arrhythmogenic right ventricular dysplasia (ARVD/C). Here myocytes are replaced with fat, producing islands of viable myocytes in a sea of fat. This causes a delay in excitation of some of the myocytes of the right ventricle and causes the little wiggles seen during the ST segment of the ECG.*
- *Epsilon waves are **not specific to ARVD**. They have also been described in patients with posterior myocardial infarction; right ventricular infarction; infiltration disease, and sarcoidosis.*
- *Epsilon waves **are best seen in the ST segments of leads V1 and V2, and most commonly seen in leads V1 through V4.***