

Cardiovascular MCQs

MCQ CVS 1

1 Which of the following is NOT a treatment for torsades de pointes?

- A Magnesium
- B Isoprenaline
- C Defibrillation
- D Amiodarone

2 The following are true with regard to pacemakers EXCEPT

- A Pacemaker syndrome is more common in VVI pacemakers
- B Infections related to pacemakers occur in ~ 10% cases
- C Staphylococcal infections are most common
- D ICD discharge for non shockable rhythms is ~10%

3 The following is diagnostic for LVH

- A R in V5 + S in V1 > 25mm
- B S in I + R in III > 35mm
- C R in V6 + S in V1 > 35mm
- D R in V5 + S in V1 > 35mm

4 The following may be useful in the treatment of Torsades EXCEPT

- A Isoprenaline
- B Potassium
- C Magnesium
- D Amiodarone

5 All of the following are TRUE regarding bradyarrhythmias except

- A Mobitz I block is more common than Mobitz II
- B Ventricular escape of 20 bpm may be seen in third degree heart block
- C Mobitz I block often deteriorates to complete AV block
- D QRS complexes are usually wide in Mobitz II

6 The following are relative contraindications to thrombolysis

- A Suspected Aortic Dissection
- B known intracranial neoplasm
- C CVA within last 3 months
- D Active peptic ulcer disease

7 Regarding thrombolytics, all of the following are true EXCEPT

- A Streptokinase is preferred over TPA in elderly patients
- B TPA is weight based infusion
- C Tenecteplase is weight based dose
- D Reteplase is weight based

8 All of the following conditions post myocardial infarction have an increased risk of sudden cardiac death from ventricular tachyarrhythmias EXCEPT

- A Episodes of non-sustained VT
- B Prolonged QTc
- C Ejection fraction <35%
- D Complete heart block

9 Regarding VVI pacemakers which is TRUE

- A They are dual chamber pacemakers
- B They have 2 electrodes
- C They have an atrial sensor
- D They can cardiovert VT

10 With regard to Wolff-Parkinson-White syndrome

- A 50% have a tachyarrhythmia secondary to atrial fibrillation / flutter
- B The refractory period of the accessory pathway is usually longer than the refractory period of the AV node
- C Diuresis can occur following reversion of the tachyarrhythmia
- D A refractory tachyarrhythmia may respond to digoxin IVI

11 In regard to Cardiac markers, which of the following is FALSE?

- A The specificity for Troponin I in patients with chronic renal impairment on hemodialysis is higher than for Troponin T
- B CK-MB isoenzymes are useful for detecting re-infarction
- C Myoglobin rises 2-4 hours after myocardial injury
- D The negative predictive value of myoglobin is high enough to exclude the diagnosis of ACS

12 Conditions associated with an elevated troponin include all of the following EXCEPT

- A pacing
- B sepsis
- C Acute liver impairment
- D Subarachnoid haemorrhage

13 Infective endocarditis (of native heart valves) in adults is MOST commonly caused by

- A Streptococcal species in healthy adults and Staphylococcal species in IVDU
- B Staphylococcus species in healthy adults and polymicrobial in IVDU
- C Enterococci in healthy adults and Staphylococcal species in IVDU
- D Staphylococcal species in healthy adults and IVDU

14 The following drugs prolong QT EXCEPT

- A moxifloxacin
- B trimethoprim
- C diphenhydramine
- D digoxin

15 The following are true of paroxysmal SVT EXCEPT

- A alcohol toxicity is associated with ectopic foci
- B Mahaim bundles are a cause of Wolff Parkinson White
- C Rate is 150 to 250 beats per minute
- D Supine Valsalva for 10 seconds is the most effective vagal manoeuvre

16 The following are indicators of VT in a broad complex tachycardia EXCEPT

- A Age > 55 years
- B Variable loud S1
- C Fusion beats
- D QRS > 140ms

17 A collapsing pulse is associated with

- A decreased PaCO₂
- B aortic stenosis, with or without aortic regurgitation
- C uncomplicated pregnancy
- D Hypothermia

18 In a patient who presents with syncope, which of the following features is NOT consistent with Brugada syndrome?

- A A family history of sudden death
- B Unusual J point elevation in V1 and V3
- C ECG changes when given procainamide
- D T wave inversion in V1 to V3.

19 In WPW syndrome, which of the following is FALSE?

- A B blocking agents and calcium channel blockers should be avoided.
- B AF or flutter with a rapid ventricular response can be treated with digoxin.
- C There is a high incidence of tachyarrhythmias with WPW.
- D In antidromic tachycardia, the patient is at risk of degeneration to VF

20 The differential diagnosis of ST elevation includes all of the following EXCEPT

- A Benign early repolarisation
- B Osborne waves of hypothermia
- C Hyperkalaemia
- D Left ventricular aneurysm

21 Regarding fibrinolysis, which is FALSE?

- A Bone pain occurs only with streptokinase therapy
- B Tenecteplase has a higher risk of ICH than streptokinase
- C Streptokinase is produced by group b haemolytic streptococci
- D Alteplase has the shortest half life of the TPAs

22 Regarding treatment of ACS, which of the following is FALSE

- A A 12 lead ECG involves the use of only 10 leads
- B Swallowed aspirin has better bioavailability than chewable ones
- C In the acute phase of ACS it is better not to change from one type of heparin to another
- D Abciximab is not recommended in patients receiving fibrinolysis for STEMI

23 Which of the following treatments is NOT a grade a recommendation for the long term management after control of myocardial ischaemia

- A Aspirin
- B BB
- C ACE Inhibitor
- D Ongoing prevention and cardiac rehabilitation programs

24 Regarding risk stratification for NSTEMI/ACS which of the following is FALSE?

- A DM and CRF are independent high risk factors for patients with atypical pain
- B Age > 65 y/o is an intermediate risk factor
- C Syncope is a high risk feature
- D LVEF<40% is a high risk feature

25 Which of the following is FALSE?

- A The most important initial requirement for acute management of chest pain is access to defibrillation
- B Coronary artery intervention with a raise in troponin level is part of the diagnostic criteria for AMI
- C New definitions for MI do influence indications for prevention therapies
- D CK-MB and CK can be used to confirm reinfarction

26 Regarding accessory cardiac conduction pathways, which is CORRECT?

- A Lack of a delta wave excludes an aberrant pathway
- B Polymorphic atrial complexes in A. Fib indicate a lower risk of V. fib
- C Procainamide may be used in antidromic SVT
- D Delta waves indicate an accessory AV nodal pathway

27 Which is NOT a moderate risk feature of IHD in setting of chest pain?

- A Left arm or central chest pain
- B Age >70y.o.
- C -ve troponin
- D T wave flattening

28 With regards to the JVP, all of the following are true EXCEPT:

- A Tricuspid regurgitation can cause a dominant v wave
- B Tricuspid stenosis can cause canon a waves
- C Kussmaul's sign is a rise in the JVP on inspiration
- D A hyperdynamic circulation causes an elevated JVP.

29

30 ECG features predictive of posterior infarct include all the following EXCEPT:

- A ST depression in V1-3
- B R/S ratio > 1.0 in lateral leads
- C Tall upright T waves V 1-3
- D ST elevation V 7-9

31 Features that make VT more likely than SVT includes all the following EXCEPT:

- A Age > 35
- B History of IHD
- C QRS less than 0.14s
- D Pulse < 200

32 With regard to syncope, which statement is TRUE?

- A The presence of orthostatic hypotension on examination diagnoses the cause of syncope.
- B A patient who has signs of cardiac failure after a syncopal episode is at high risk of early mortality including sudden cardiac death.
- C A Stokes-Adams attack is related to vertebro-basilar insufficiency.
- D Syncope is unlikely to occur while a patient is seated.

33 In the treatment of acute heart failure, which is TRUE?

- A Furosemide is beneficial due to its effect on afterload reduction.
- B The most important effect of GTN is vasodilation in pulmonary vessels
- C Digoxin has a proven important role in acutely decompensated heart failure associated with atrial fibrillation
- D Fluid challenge may be appropriate in cardiogenic shock due to heart failure.

34 Regarding treatment of AMI, which is TRUE?

- A 10 % of patients treated with PTCA will require a further procedure (PTCA or CABG) in the next 2 – 3 years.
- B Late administration of aspirin significantly reduces mortality in STEMI.
- C B-blockers are effective in reducing both symptomatic and silent ischaemia.
- D Magnesium administered early in AMI reduces reperfusion related injury and improves mortality.

35 When evaluating arrhythmias, which is TRUE?

- A Second degree AV block Mobitz type 1 is always benign and does not need further investigation.
- B Sick sinus syndrome often has tachycardia as a feature.
- C AMI is the most common cause of complete heart block.
- D In the ED 20% of all broad complex tachycardias are VT.

36 In the cardioversion of AF which of the following is FALSE

- A Amiodarone is a reasonable option
- B Synchronised DC cardioversion with 200J monophasic has the highest success rate
- C Elective electro cardioversion is contra-indicated if hypokalaemia present
- D Pre-treatment with amiodarone may enhance the success of electro cardioversion

37 With regard to syncope, which of the following is FALSE?

- A The commonest cause is idiopathic
- B Routine bloods (FBC, UEC & BSL) are not recommended
- C An ECG is recommended in almost all patients
- D The cause for the syncope is frequently made based on the ECG (>20%)

38 In the treatment of tachyarrhythmias in a conscious patient, which statement is TRUE?

- A Verapamil is the drug of choice for an irregular broad complex tachycardia
- B Flecainide is the drug of choice in AF with Wolf Parkinson White syndrome
- C Adenosine is safe in the treatment of all forms of SVT
- D Sotalol can rate control but not cardiovert rapid AF

39 The following ECG findings are known to be associated with sudden cardiac death EXCEPT

- A LBBB pattern with QRS concordance
- B Shortened PR interval in the absence of a delta wave
- C Partial RBBB and ST segment elevation in V1 – V3
- D RBBB and SVT

40 Causes of ST elevation include all of the following EXCEPT

- A Hypokalaemia
- B Subarachnoid haemorrhage
- C Left ventricular aneurysm
- D Post cardioversion

41 In the risk stratification of ACS, a feature associated with high risk is

- A Prior MI with ejection fraction > 0.4
- B Known diabetes with atypical pain
- C Age > 65 years
- D Syncope

Answers

1. D
2. D (22% !)
3. D
4. D causes further prolongation of QT interval
5. C
6. D all the rest are absolute contraindications
7. D
8. D
9. B
10. C
11. D
12. C
13. A
14. D
15. B
16. A
17. C
18. D Tintinalli. P 190.
19. B – contraindicated. Should get procainamide/amiodarone or cardioversion. Tintinalli p 199
20. C Dunn p 67
21. C Dunn EMM Pages 79-82
22. B ILCOR ACS
23. C MJA supplement-Mx of ACS
24. A ACS guidelines 2006 MJA
25. C ACS guidelines 2006
26. A
27. D AHA guidelines on chest pain
28. B Clinical Examination, 2nd Edition, Talley and O'Connor
- 29.
30. B should be V 2 only B – should be V 2 only
31. C should be $> 0.14s$
32. B
33. D
34. C
35. B
36. B AHA 2006 Guidelines for the management of Atrial Fibrillation
37. D Syncope review article – NEJM Dec 2000
38. B Dunn 4th Ed. Chapter 4: Cardiology, pages 122 – 127.
39. D Dunn 4th Ed. Chapter 4: Cardiology. Pages 127 – 131
40. A
41. D MJA. Guidelines for the management of ACS 2006
42. A
43. D Dunn, p119

CVS 2 MCQs

1 In a patient who experiences an episode of syncope, all of the following are associated with a worse prognosis EXCEPT

- A History of AMI
- B Structural cardiac defect
Including cardiomyopathies
- C Left bundle branch block
- D Congestive cardiac failure

2 Oxygen delivery

- A By nasal prongs is 10 – 20% with flow of 1 – 4 l/min
- B By Hudson mask is 35 – 60% with flow of 0 – 6 l/min
- C By non-rebreather with reservoir is 100% with flow of 15 l/min
- D By nasal prongs is 25 - 40% with flow of 1 – 4 l/min

3 Which of the following is NOT a proven risk factor for PE.

- A Age
- B Homocysteinuria
- C Female
- D Obesity

4 A 40yo female on OCP presents with several hours of pleuritic chest pain, D-dimer positive, Chest X-ray minor changes, V/Q scan low probability. Your further management would be.

- A Analgesia, home, GP followup
- B ECG, ABG
- C CTPA
- D U/sound legs

5 All are signs of severe mitral stenosis EXCEPT

- A Loud S1
- B Early opening snap
- C Long diastolic murmur
- D Diastolic thrill

6 All are signs of severe mitral regurgitation EXCEPT

- A Small volume pulse
- B Soft S1
- C S3
- D S4

7 The following are true EXCEPT

- A A pericardial effusion of more than 250 mls is required to enlarge the cardiac silhouette in an adult on CXR
- B Beck's triad consists of muffled heart sounds, raised venous pressure and decreased arterial pressure
- C Pulsus Paradoxus is an important clue to the presence of pericardial effusion causing tamponade
- D Colchicine has no role in the treatment of recurrent pericarditis

8 Regarding hypertensive encephalopathy which is TRUE?

- A It does not occur until MAP > 180mmHg
- B It occurs due to cytotoxic oedema
- C Sodium nitroprusside should not be used in renal failure patients
- D Retinopathy is essential for the diagnosis

9 Regarding the treatment of hypertensive emergencies, which is TRUE?

- A Hypertension caused by pre-eclampsia can be treated with hydralazine or labetalol
- B The treatment of hypertension in the setting of intracranial bleeds improves outcome
- C Immediate reduction of mean arterial blood pressure in patients with hypertensive encephalopathy improves outcome
- D The treatment of hypertension in the setting of embolic stroke improves outcome

10 Which of the following therapies will work in a cardiac transplant patient?

- A Quinidine
- B Digoxin
- C Atropine
- D Aminophylline

11 With regard to the use of VQ scanning in suspected pulmonary embolism, which of the following is TRUE?

- A CXR is not always indicated before the VQ scan is performed
- B High pre-test probability mandates a further test even if the VQ scan is positive
- C An intermediate VQ scan requires further testing to be performed even if the PTP is low
- D A normal VQ scan requires further testing with a high PTP

12 Regarding PE which of the following is TRUE

- A The majority of patients have a normal CXR
- B The majority of patients have a normal ECG
- C V/Q may not detect large central emboli
- D Pulmonary angiography detects directly PE

13 Regarding CXR in thoracic aortic dissection which of the following is FALSE?

- A Obliteration of the aortic knob suggests dissection
- B Localized prominence along aortic contour suggests dissection
- C Distortion of the left main bronchus suggests dissection
- D Effective screening tool in patients with ?AMI

14 Which of the following statements is FALSE regarding Congenital Heart defects

- A ASD requires prophylaxis for Infective Endocarditis
- B VSD is the most common defect with males and females equally affected
- C Ostium Secundum is the most common but least serious type of Atrial Septal Defect
- D Congenital heart disease has become the number 1 cause for heart disease in children in the developed world

15 Which of the following is TRUE with regard to congestive heart failure?

- A NSAID's, corticosteroids and the oral contraceptive pill are all precipitants.
- B Prophylactic anti-arrhythmics decrease the mortality from ventricular arrhythmias.
- C BNP comes from the cardiac ventricle
- D Nesiritide is a valuable drug for treatment of CHF in Australasia.

16 Which of the following is TRUE regarding cardiac valve disorders?

- A Ankylosing spondylitis is associated with development of third degree heart block mostly at the level of the SA node.
- B The murmur in HOCM is systolic and is decreased by squatting.
- C The murmur of MV prolapse is best distinguished from HOCM by the presence of a late systolic click.
- D Marfans, Ehlers-Danlos and Reiters are important connective tissue disorders in aetiology of valve disease.

17 Which of the following is TRUE in regard to Myocarditis ?

- A Circulating anti-cardiac antibodies are present.
- B Commoner in older adults than children.
- C Bacterial pathogens are never responsible.
- D There is no role for steroids in treatment.

18 In paediatric valvular heart disease, which of the following is CORRECT?

- A An innocent murmur disappears on lying flat.
- B There is a fixed and widely split second heart sound in VSD
- C In a PDA an infusion of prostaglandin is indicated if symptomatic
- D Transposition of the great arteries is a non-cyanotic heart disease.

19 With regards to rheumatic fever, which of the following is FALSE?

- A Sydenham's chorea is a major manifestation.
- B This remains the most important cause of heart disease in children worldwide.
- C Polyarthralgia is a major manifestation.
- D It is related to preceding group A streptococcal infection.

20 Regarding the diagnosis and management of PE, which is TRUE?

- A The sensitivity of multidetector, spiral CTPA is > 95%
- B BNP is useful in their risk stratification
- C IVC filters significantly increase overall survival in patients with recurrent PE
- D In a patient with low pre-test probability and normal CXR, VQ scan is more sensitive for PE detection than CTPA

21 Drugs which are known to precipitate a hypertensive emergency include the following, EXCEPT?

- A Steroids
- B Glucagon
- C NSAIDS
- D Tricyclic antidepressants

22 Regarding infective endocarditis, which of the following is FALSE

- A Mitral valve prolapse is the most common predisposing condition in young adults
- B Calcific aortic stenosis is the underlying defect in 50% infective endocarditis in the elderly
- C Janeway lesions are irregular erythematous painful macules representing an infectious vasculitis
- D "HACEK" organisms and P.aeruginosa are the most common gram negative organisms responsible for infective endocarditis in IVDUs

23 The following all produce a typical pansystolic murmur EXCEPT,

- A Aortic Stenosis
- B Mitral regurgitation
- C Ventricular septal defect
- D Tricuspid regurgitation

24 Antibiotic prophylaxis against endocarditis should be given to:

- A All patients with valvular heart disease prior to high risk procedures
- B Any heart transplant recipient prior to high risk procedures
- C All patients with rheumatic heart disease prior to high risk procedures
- D All high risk patients having an avulsed tooth replanted

25 Regarding congenital heart disease:

- A VSD is more common than ASD
- B Muscular portion of the septum is most commonly involved in VSD
- C ASD defects should be repaired if the patient has pulmonary hypertension
- D Pansystolic murmurs in a child are usually innocent

26 The following are true of pulmonary embolism EXCEPT

- A It is less common in Asia
- B ECG is abnormal in 70-85%
- C PIOPED 1 studied Chest radiography in patients with PEs
- D CTA had a sensitivity of 83% in PIOPED 2

27 Cardiomyopathies are

- A The second commonest cause of cardiac disease
- B Septal Q waves are found in dilated cardiomyopathy
- C Tako-tsubo cardiomyopathy is associated with gambling
- D Restrictive cardiomyopathy is associated with alcohol abuse

28 Which one of the following in regards to HOCM is TRUE

- A The chest xray in HOCM usually reveals mild cardiomegaly
- B The valsalva manoeuvre makes the murmur more difficult to hear
- C AF and WPW syndrome is less common in individuals with HOCM compared with the general population
- D Deep and narrow lateral q waves is a specific finding

29 With regard to PE which statement is FALSE

- A Pts with Well's criteria Intermediate PTP have a 20% incidence of PE
- B Prevalence of elevated Troponin is 20-40%
- C 85% have a Hx of dyspnoea
- D A-a gradient on ABG is Elevated in only 50% of pts with PE

30 Which of the following do NOT produce both Systolic and Diastolic murmurs

- A Patent Ductus Arteriosus
- B Hypertrophic Obstructive Cardiomyopathy
- C Atrial Septal Defect
- D Aortic Regurgitation

31 A D-Dimer IS indicated in the workup of which of the following situations when a diagnosis of PE is being considered:

- A PERC Rule negative
- B PE is most likely diagnosis
- C Symptoms have been present for greater than 1 week
- D Using Well's criteria low probability of PE

32 In regard to Myocarditis, which of the following is TRUE

- A Can be reliably diagnosed on ECG
- B Patients with worse heart failure on presentation are less likely to develop long term complications
- C Elevated cardiac markers (Trop or CK) required for diagnosis
- D Common cause of heart failure

Answers

1. C
2. D
3. C
4. D
5. A
6. D
7. D
8. C
9. A
10. D Dunn p168
11. C SCGH PE Initial Diagnostic Pathway
12. C Dunn
13. D Cameron
14. A
15. C
16. B
17. A
18. A B – this is ASD due to RV SV equal in both inspiration and expiration. C – want an inhibitor such as indomethacin in order to close the PDA. E – atrioventricular septal defect commonest, then VSD.
19. C this is a minor manifestation. Polyarthrititis is a major manifestation.
20. D N Engl J Med 358;10 March 2008. Acute Pulmonary Embolism
21. B EM Practice July 2005. Distinguishing and managing hypertensive emergencies and urgencies.
22. C E Medicine Infective Endocarditis
23. A Clinical Examination Talley and O'Connor
24. D Therapeutic Guidelines 'Prevention of Endocarditis' 2008
25. A Dunn 4th ed p155-156
26. C PIOPED 1 and 2 Dunn
27. C
28. D (infarct q's are wider, deep and narrow lateral q's specific- Rosen)., CXR usually normal (septal hypertrophy), valsalva-louder, increased AF and WPW, ST elevation most commonly due to LV strain pattern
29. D Elevated in 85-95% Dunn, 4th Ed, pg 793-795
30. B Late Systolic murmur only Dunn, 4th Ed, pg 152
31. D Cameron et al Textbook of Emergency Med 3E + PERC Rule A – Rules out PE without need for Ix, B – Negative D-Dimer does not rule out Dx (Wells score 3.0), will not change need for further Ix C – Risk of false negative D-Dimer, need to use other tests. D – Correct, Role of D-Dimer here is to possibly rule out PE without further testing E – Absence of Imaging does not change utility of D-Dimer
32. B Cameron et al Textbook of emergency Medicine 3E A – ECG changes are not specific B – Correct, paradoxically the worse the initial heart failure, the better the long term survival (less incidence of developing DCM. C – Often elevated and can be used to track clinical course but not a requirement for Dx D – Not a common cause of heart failure overall. Estimated to cause approx 25% of DCM. E – Treatment is supportive, NSAIDS have no specific role
33. B Reduces response to dopamine Tintinalli Chap 57
34. C Tintinalli Chap 56.
35. C Cameron, p.234
36. B Cameron, p. 235
37. C Dunn - 2-3% only
38. C Dunn
39. B Tintinalli pg 397
40. D EM practice Aortic emergencies part 1 (Feb 2006)