NOTE: PowerPoint slides for this CE module are available on YouTube site "NWCEMS"

1. What is the primary reason to perform a prehospital 12L ECG? A To rule out a MI B To decrease E2B time C To interpret the ECG rhythm D To prevent the need for a 12L in the ED	2. What should be done if 12L ECG interpretation states, "data quality prohibits interpretation"? A Transport without repeating 12L ECG B Ask OLMC if they want 12L repeated C Repeat 12L without changing electrodes D Replace electrodes causing artifact and repeat 12L	3. What skin prep should be performed when placing electrodes for a 12L ECG? A Apply CHG/IPA solution to area B Apply tincture of benzoin to skin C Rub skin with washcloth or towel D Skin prep is not needed for 12L ECG's
4. What electrode should be replaced if artifact is seen on leads I & II? A RA B LA C RL D LL	5. What electrode should be replaced if artifact is seen on leads I & III? A RA B LA C RL D LL	6. What electrode should be replaced if artifact is seen on leads II & III? A RA B LA C RL D LL
7. What describes ischemia? A Tissue deprived of oxygen B Reversible, dying tissue C Irreversibly dead tissue D Vasodilation caused by hyperoxia	8. What describes injury? A Tissue deprived of oxygen B Reversible, dying tissue C Irreversibly dead tissue D Vasodilation caused by hyperoxia	9. What describes infarction? A Tissue deprived of oxygen B Reversible, dying tissue C Irreversibly dead tissue D Vasodilation caused by hyperoxia
10. What are 12L findings for ischemia? A ST depression B ST elevation C Pathological Q waves D Prolonged QT interval	11. What are 12L findings for injury? A ST depression B ST elevation C Pathological Q waves D Prolonged QT interval	12. What are 12L findings for infarction? A ST depression B ST elevation C Pathological Q waves D Prolonged QT interval
13. What leads will show changes with an inferior wall MI? A II, III, aVF B V1-4 C I, aVL, V5-6 D aVR, aVL, aVF	14. What leads will show changes with an anterior wall MI? A II, III, aVF B V1-4 C I, aVL, V5-6 D aVR, aVL, aVF	15. What leads will show changes with a lateral wall MI? A II, III, aVF B V1-4 C I, aVL, V5-6 D aVR, aVL, aVF
16. What should be done if ST elevation is seen in leads II, III, aVF on a 12L? A Start an IV before giving NTG B Give 500mL IVF before giving NTG C Obtain a V4R tracing to determine if NTG can be given D Place electrodes in V 7-9 positions on the posterior chest wall and obtain an ECG	17. When should a V4R ECG tracing be obtained? A All acute MI's B Anterior wall MI's C Inferior wall MI's D Lateral wall MI's	18. What is the significance of ST depression in leads I & aVL, with ST elevation in leads II, III, and aVF? A Misplaced electrodes B There is no clinical significance C Reciprocal changes, supporting diagnosis of STEMI D Changes cancel one another out and indicate no acute pathology is present
19. What criteria must be present for a bundle branch block (BBB)? A Any rhythm w/ QRS $\geq$ 0.12 B Supraventricular rhythm w/ QRS $\geq$0.12 C Supraventricular rhythm w/ notched (bunny ears) QRS that is $\geq$ 0.12 D Supraventricular rhythm w/ QRS between 0.10 and 0.12	20. How does the presence of a left bundle branch block affect STEMI diagnosis? A LBBB can mask or mimic STEMI B STEMI w/ LBBB has a low mortality rate C Pts w/ LBBB rarely develop HF or cardiogenic shock D The presence of a LBBB has no impact on 12L ECG diagnosis of STEMI	21. Which would be an accurate ECG rhythm interpretation? A VT w/ BBB B IVR w/ BBB C SR w/ BBB D 3o AVB w/ BBB
22. What is the range for a normal mean arterial pressure (MAP)? A 50 - 60 B 70 - 110 C 90 - 140 D 110 - 160	23. What MAP is indicative of cardiogenic shock? A less than 60 B less than 90 C less than 100 D less than 110	24. What is the single most useful data point to differentiate HF from cardiogenic shock? A HR B RR C BP D lung sounds

25. What effect will tachycardia have on coronary artery blood flow?
A Will increase blood flow
B Will decrease blood flow
C Tachycardia has no effect on coronary artery blood flow
D Will decrease blood flow only if hypotension is also present

26. Can an acute MI be caused by hypotension or tachycardia?
A No
B Yes
C Only if an embolus also occurs
D Only if plaque rupture also occurs

27. What happens when oxygen demand exceeds oxygen supply?
A Ischemia
B Improved contractility
C Decreased incidence of dysrhythmia
D Improved conduction from SA to AV node and bundle of His

28. What is an aortic aneurysm?
A Dilation of an artery
B Inner tear which separates layers
C Dilation of an artery with an inner tear
D Constriction or narrowing of an artery due to accumulation of fatty plaque

29. What is an aortic dissection?
A Dilation of an artery
B Inner tear which separates layers
C Dilation of an artery with an inner tear
D Constriction or narrowing of an artery due to accumulation of fatty plaque

30. What presentation is most suspicious of a thoracic aortic dissection?
A Sudden onset of mild dull chest ache
B Sudden onset of worst pain ever, sharp, anterior or posterior chest
C Gradual onset of chest pressure, increasing in severity over several hours
D Gradual onset of epigastric pain, leading to burning sensation in chest

31. 65/F c/o feeling dizzy. P 38, ECG = SB, R 18, BP 72/48, O2 sat 94%. Denies PMH, meds, or allergies. Which should be used first to treat this pt?
A Atropine 0.5 mg
B Dopamine 5 mcg/kg/min
C Glucagon 1 mg IVP
D Transcutaneous pacing

32. 65/F c/o feeling dizzy. P 38, BP 72/48, ECG = 3º AVB w/ wide QRS, R 18, O2 sat 94%. Denies PMH, meds, or allergies. Which should be used first to treat this pt?
A Atropine 0.5 mg
B Dopamine 5 mcg/kg/min
C Glucagon 1 mg IVP
D Transcutaneous pacing

33. 65/F c/o feeling dizzy. P 38, BP 72/48, ECG = 3º AVB w/ wide QRS, R 18, O2 sat 94%. Denies PMH, meds, allergies. Transcutaneous pacing (TCP) has been ineffective. What tx should pt receive?
A Atropine 0.5 mg
B Dopamine 5 mcg/kg/min
C Glucagon 1 mg IVP
D Increase TCP rate to 120 BPM

34. On a PCR, what should be documented in the "pulse" section?
A Pts palpable pulse rate
B HR seen on ECG monitor
C HR that 12L ECG calculates
D Both the palpable pulse and HR

35. How should pts ECG rhythm (not 12L findings) be documented on the PCR?
A Transcribe the rhythm interpretation directly from the 12L ECG
B An ECG rhythm does not need to be documented if a 12L is performed
C PM should interpret ECG and document rhythm in "ECG monitor" section
D In "ECG monitor" section, document "no interpretation – 12L performed."

36. How should 12L ECG interpretation be communicated to OLMC?
A Read statement verbatim and also notify OLMC of any ST elevation seen
B PM should summarize the 12L ECG's interpretative statement
C Only the PM's own interpretation needs to be communicated to OLMC
D 12L interpretation does not need to be communicated to OLMC

37. What should a PM carefully assess and monitor a pt with Wolff-Parkinson-White (WPW) syndrome for?
A AV blocks
B Torsades
C Bradyarrhythmias
D Tachyarrhythmias

38. What is <u>NOT</u> a criteria for Wolff-Parkinson-White (WPW) syndrome?
A Short PR interval
B Prolonged QT interval
C Slurred upstroke of QRS/delta wave
D Widened QRS complex

39. If a pt w/ Wolff-Parkinson-White (WPW) syndrome is experiencing a tachycardic atrial fibrillation, what should be done?
A Contact OLMC
B Administer adenosine
C Administer magnesium
D Administer verapamil

40. What are criteria for torsades?
A All polymorphic VT rhythms
B Short PR interval & wide QRS
C Polymorphic VT & prolonged QT
D Polymorphic VT w/ slurred QRS/delta wave

41. What is tx for torsades in pt w/ SBP 140?
A Lidocaine 1 mg/kg IVP
B Verapamil 5 mg IVP over 2-3 minutes
C Magnesium 2 Gm diluted in 16 mL NS IVP over 5 minutes
D Amiodarone 150 mg diluted in 7 mL NS IVP over 10 minutes

42. What is tx for polymorphic VT without a prolonged QT interval in pt w/ SBP 130?
A Lidocaine 1 mg/kg IVP
B Verapamil 5 mg IVP over 2-3 minutes
C Magnesium 2 Gm diluted in 16 mL NS IVP over 5 minutes
D Amiodarone 150 mg diluted in 7 mL NS IVP over 10 minutes

43. PM's give a pt ASA and note that it has not dissolved when attempting to administer NTG. What should be done?
A Give pt small sip of water
B Put NTG tab on top of ASA
C Delay administration of NTG
D Have pt spit out ASA and give NTG

44. What is the purpose of giving ASA to a suspected pt w/ ACS?
A Break down clot in coronary artery
B Prevent a clot from increasing in size
C Treat headache pt may develop when NTG is given
D Prevent/minimize histamine release when fentanyl is given

45. What is a contraindication to ASA administration?
A Pt actively vomiting
B Pt taking clopidogrel/dabigatran
C Pt taking warfarin
D PMH of "ulcer 6 months ago"

46. Unless contraindicated, what is the max number of NTG that can be given to ACS pt c/o discomfort - <u>not</u> in HF?
A 1
B 2
C 3
D unlimited

47. What can be done if NTG tablets are not dissolving under a pts tongue?
A Withhold NTG
B Place a drop of H2O/NS on tablet
C Tell pt to chew & swallow the tablet
D Place 2nd NTG tablet on top of the first

48. What is the desired effect when giving NTG to a pt w/ ACS related discomfort?
A Decrease preload
B Decrease afterload
C Dilate peripheral veins
D Dilate coronary arteries

49. What is a side effect of fentanyl?
A Myoclonus
B Tachypnea
C Hypotension
D Anxiety & tremors

50. What is maximum fentanyl dose that can be given prior without OLMC order?
A 0.5 mcg/kg or 50 mcg – whichever less
B 1 mcg/kg or 100 mcg – whichever less
C 2 mcg/kg or 150 mcg – whichever less
D 3 mcg/kg or 200 mcg – whichever less

51. What route will have the fastest onset and peak effect for fentanyl?
A IM
B IN
C IV
D SC

52. Where should combo pads be placed for transcutaneous pacing?
A Same position as defib pads
B Wherever convenient, as placement is not critical
C Anterior pad in V4 position; posterior pad below L scapula
D Place one pad in (R) mid-axillary line and the other in (L) mid-axillary line

53. Which pt would <u>NOT</u> be a candidate for transcutaneous pacing?
A Pt w/ heart transplant
B 3o AVB w/ wide QRS
C 2o Mobitz Type II AVB
D Pulseless pt w/ bradycardia

54. When pacing pts, what should the mA be increased to?
A 60-70 mA
B 100 mA
C 360 mA
D Increase until pulse palpated @ 60 or maximum mA

55. What is the goal (time in minutes) for acquisition of an initial 12L ECG?
A Within 2 minutes of pt contact
B Within 5 minutes of pt contact
C Within 15 minutes of pt contact
D Within 20 minutes of pt contact

56. If a prehospital 12L ECG shows a STEMI, when should this first be communicated to OLMC?
A ASAP – preferably while on scene
B While enroute to hospital
C Upon arrival in ED
D When giving PCR to ED RN/MD

57. When treating a pts dysrhythmia w/ meds, why is it important to obtain a 12L ECG?
A To prevent need for ED to obtain 12L
B To assure adequate reimbursement for ambulance billing
C Will be helpful to cardiologist to determine life-long meds
D To obtain rhythm interpretation and prevent need for PM to interpret ECG

58. Unless contraindicated, what is the maximum number of NTG that can be given to the pt in HF?
A 1
B 2
C 3
D unlimited

59. Should NTG be given to the pt c/o SOB in HF – who denies any discomfort?
A No
B Yes
C Only w/ OLMC order
D Only if pt not tolerating CPAP

60. What is the BP goal when treating a pt in cardiogenic shock w/ dopamine?
A SBP between 80 – 90
B SBP of 90
C SBP maintained > 90 & MAP > 60
D There is no BP goal when using dopamine