

1. Which is correct in distinguishing between Brugada and benign early repolarization
 - a) Early repolarization has down-sloping ST segment elevation in V1-3
 - b) Brugada has a notched J-point
 - c) Brugada has ST elevation in V2-6 with an upward concavity
 - d) A right bundle branch block is often associated with Brugada

2. Which is correct in determining if a patient has long QT
 - a) Bazett's equation corrects measured QT so that the QTc can be determined against a heart rate of 80 bpm
 - b) Electrolyte causes of long QT are hypokalaemia, hypomagnesaemia and hypocalcaemia
 - c) QT interval is from start of Q to the midpoint of T wave and normal QTc limits are 0.35 to 0.44 seconds
 - d) QT interval Nomograms can be used instead of QTc formulas if a patient is suspected of having congenital long QT syndrome

3. Which of the following characteristics would **not** be beneficial in determining if a patient is to survive an out of hospital cardiac arrest
 - a) Arrest occurs away from home
 - b) Initial rhythm is "coarse" VF
 - c) Arrest is asystole due to hypoxia of brief duration
 - d) Bradycardic arrest treated with atropine, adrenaline and pacemaker

4. With regard to the right coronary artery which is correct
 - a) Inferior, compared to anterior, infarcts are more often associated with Bezold-Jarisch reflex (nausea, vomits, bradycardia and hypotension secondary to an AMI in the first 30 to 60 min)
 - b) 90% of AV nodes receive their circulation from the RCA
 - c) Proximal occlusion of the RCA will only occlude the AV node
 - d) 55% of AV nodes receive their circulation from the RCA

5. Which average percentage of survival from VT arrest is true if defibrillation is given within the described time
 - a) Within 30 seconds = 100% survival
 - b) Within 2 minutes = 70% survival
 - c) Within 5 minutes = 30% survival
 - d) Within 15 minutes = 20% survival

6. In chest compression techniques
 - a) There is good evidence for compressing the lower half of the sternum
 - b) Compression and relaxation times should be about equal to allow recoil
 - c) Pregnant women should have a towel placed under right hip before commencing CPR to displace the uterus from IVC and aorta
 - d) Although depth of compressions should be $\frac{1}{3}$ that of the chest, ANZCOR has put an upper limit on compression depth at 7 cm

7. When considering inserting an advanced airway (endotracheal tube, LMA etc) in a patient undergoing CPR which is part of the ANZCOR guidelines
 - a) Tracheal intubation is superior to bag valve mask in terms of survival to discharge
 - b) Once intubated the lungs should be ventilated at 18 breaths per minute
 - c) Chest compressions should pause whilst breaths are delivered in intubated patients
 - d) Supraglottic airways (LMA) can substitute endotracheal tubes but may produce air leak when ventilating during CPR so ratios can be changed back to 30:2

8. In Neonatal resus what is the sequence of events prior to commencement of CPR
 - a) First priority is to place a CPAP mask on the child to provide initial PEEP
 - b) Give positive pressure ventilation only if HR < 60
 - c) Give supplemental oxygen only if CPAP on air has failed to achieve target peripheral O₂ saturation
 - d) If meconium stained liquor is present repeated suction via an endotracheal tube should be done until ETT clear before commencing resuscitation

9. Which are accurate sizes for intubation in neonates
 - a) 2kg = miller laryngoscope blade 0 = ETT size 2.5 length 6cm at lips
 - b) 1kg = miller laryngoscope blade 1 = ETT size 2.5 length 7cm at lips
 - c) 3kg = miller laryngoscope blade 1 = ETT size 3.5 length 9cm at lips
 - d) 4kg = miller laryngoscope blade 1 = ETT size 4 length 11cm at lips

10. Which of the following drug doses is **incorrect** in neonatal resus
 - a) N.Saline 10 - 20 ml/kg
 - b) Adrenaline IV 10 - 30 mcg/kg
 - c) Adrenaline via ETT 50 - 100 mcg/kg
 - d) 10% dextrose IV 2 ml/kg

11. Which of the following is an immediate treatment for congenital abnormality in neonates
- Gastroschisis = wrap contents with warm saline gauze
 - Tracheoesophageal fistula = Place child in a Trendelenburg
 - Congenital diaphragmatic hernia = Bag Valve mask until surgical intervention
 - Congenital diaphragmatic hernia = Hypoventilate aim pCO₂ >40mmHg to lower pulmonary vascular resistance
12. Regarding the difference between adult and paediatric airways which is **not** true?
- Infants < 6 months are primarily nasal breathers so it is important to keep nasal passages clear
 - The airway is higher and more anterior in a child
 - A pillow underneath a child's occiput will allow a "sniffing position" and help open the airways
 - The tongue and epiglottis is larger in a child
13. In a conscious child choking on a foreign body which is an acceptable method to try to remove the FB
- Five back blows and chest thrusts are recommended if a child cannot vocalize or cough
 - Infants should be placed supine along rescuers arm for chest thrusts before back blows
 - Discourage coughing as this could cause airway trauma and bleeding
 - Do not place a child prone over a rescuer's knee as CPR cannot be done
14. Which estimation of a child's dimensions is correct
- APLS formula weight = (age+4)x2 often overestimates a child's weight
 - The Broselow resus tape is weight based
 - Luscombe formula weight = (agex3)+7 is more accurate than APLS formula for older children
 - Parental estimation of child's weight is inferior to weight based formulas
15. Which dose is **incorrect** during advanced paediatric life support
- Adrenaline bolus 0.1 ml of 1:10,000 via IV
 - Atropine IV bolus 20 micrograms /kg
 - Amiodarone IV bolus 5mg/kg
 - Defibrillation 1st shock 2J/kg
16. Which drugs and the situation in which they are given is **not** recommended
- Adenosine IV 0.1mg/kg for a 4 year old child with heart rate of 220
 - Sodium bicarbonate IV 1 mmol/kg in a 2 year old child intubated after accidental ingestion of several tablets of Dothiepin (a tricyclic antidepressant)

- c) Calcium gluconate bolus IV 60mg/kg (0.6 ml of 10%) as initial treatment for PEA arrest
 - d) Magnesium bolus IV 0.2 mmol/kg (50 mg/kg) for Torsade de pointes
17. Which of the following physiological change is true in a pregnant woman in her third trimester?
- a) Cardiac output increases >50% above baseline
 - b) Femoral veins are not recommended for IV access as IVC compression from the enlarged uterus can decrease spontaneous circulation by 10-30 %
 - c) A chronic respiratory acidosis develops due to progesterone and other hormonal changes
 - d) The uteroplacental mass requires up to 30% of systemic blood volume
18. Which of the following protective factors for a fetus is **not** true if maternal hypoxia develops
- a) Fetal Hb has higher affinity for oxygen and left shifts the Oxygen dissociation curve
 - b) Fetal blood is slightly more acidotic than maternal blood allowing preferential oxygen transfer to foetal Hb from maternal Hb
 - c) Fetal Hb has lower concentration per erythrocyte than maternal to allow a greater oxygen transfer across the placenta
 - d) Fetal blood flow is preferentially redistributed to vital tissues
19. Which is **not** a problem specific to intubating pregnant women
- a) Greater airway oedema
 - b) Lower FRC
 - c) Friable mucosa bleeding more likely
 - d) Decreased gastric emptying times
20. Regarding resus in pregnancy and perimortem c.section
- a) Oxytocin should be given after perimortem c.section even directly into myometrium
 - b) Prognosis is best if c.section is performed within 10 minutes
 - c) Transverse skin incision is made to minimize internal organ injury
 - d) Perimortem c.section should not be performed if gestation is < 28 weeks

Answers

1. D (brugada = right precordial downsloping ST segment elevation V1-3 with a negative T wave often associated with a RBBB, early repolarization = ST elevation in V2-6 with an upward concavity a notched J wave and a positive T wave)

2. B (Bazett's $QTc = QT / \sqrt{RR}$ determines QTc at HR of 60, QT interval measures from beginning of Q to end of T, QT interval nomogram only used in acute poisoning because risk of torsades is better described by absolute rather than corrected QT → from LITFL and tox handbook 2e by Murray)
3. D (survival characteristics = young, witnessed collapse, early defib, arrest occurs away from home, less comorbidities, initial rhythm asystole due to vagal tone or hypoxia of brief duration or other easily correctable factors, initial rhythm is VT or coarse VF – 60% survival, not PEA - <5%, not bradysystolic)
4. A (proximal RCA supplies 55% of SA and distal RCA supplies 90% of AV, proximal occlusion can infarct both nodes)
5. A (<2min=90%, median 5 min = 50%, 10 min or more = <10%)
6. B (strong recommendation but poor evidence for lower half of sternum, displace uterus only after commencement of CPR and do not do if it interferes with quality of CPR, no upper limit as per ANZCOR guidelines BLS summary of changes December 2015)
7. D (equipoise between advanced airway and BVM, once intubated rate of 10/min with no pause in CPR → ANZCOR guidelines as of adult ALS summary of changes December 2015)
8. C (in the absence of meconium tactile stimulation and warming should be done prior to resus, give PPV if HR <100 after 30 seconds, if HR <60 after 30 seconds of PPV start CPR, term babies begin with air and titrate oxygen to sats if CPAP fails to oxygenate, tintinalli states repeated meconium suction prior to commencing resus but ANZCOR says only do this once GUIDELINE 13.4 JAN 2016)
9. C (laryngoscope miller size 0 for <32 weeks <1.5kg otherwise size 0 to 1, ETT size 2.5 for <1kg, 3 for 1-2kg, 3.5 for 2-3kg, 4 for > 3kg, length = 6 + kg)
10. D (controversial – Tintinalli states to give bolus glucose but ANCOR guideline 13.9 jan 2016 states avoid bolus aim infusion 0.05 ml or 5 mg /kg/min)
11. A (Tracheoesophageal fistula = place in reverse trendelenburg, Congenital diaphragmatic hernia = do not BVM as it will inflate GI contents; aim pCO₂ 30 to 35 mmHg to lower pulmonary vascular resistance)
12. C (large occiput nil pillow under head can put between shoulders)
13. A (infants can be placed prone and deliver 5 back blows, if child can maintain ventilation or can vocalize allow coughing to clear airway)
14. C (APLS underestimates older children compared to Luscombe, Broselow tape is height based, parental estimation are often most accurate)
15. D (defib 4J/kg as per ANZCOR guidelines 12.3 JAN 2016, adrenaline 10mcg/kg is 0.01ml/kg of 1:1,000 or 0.1ml/kg of 1:10,000)
16. C (calcium only for hyperkalaemia, hypocalcaemia and ca channel blocker overdose, MgSO₄ as per ANZCOR guidelines 12.4 JAN 2016)
17. B (Cardiac output increases 30-45% above baseline, a chronic resp alkalosis develops due to increased tidal volume and progesterone, uteroplacental mass requires 10% of blood volume at term)
18. C (fetal Hb more concentrated per erythrocyte than maternal Hb)

19. D (increased gastric emptying time and diminished lower oesophageal sphincter tone higher aspiration risk, airways issues produce greater chance of malampati class 3)
20. A (high risk of uterine atony and bleeding post c.section, perimortem c.section should be done <5 minutes, incision is vertical below xiphoid process to pubic symphysis, performed on fetus of viable age which is now >22 weeks)