



# ON FIELD MANAGEMENT OF EMERGENCIES IN SPORTS- 2



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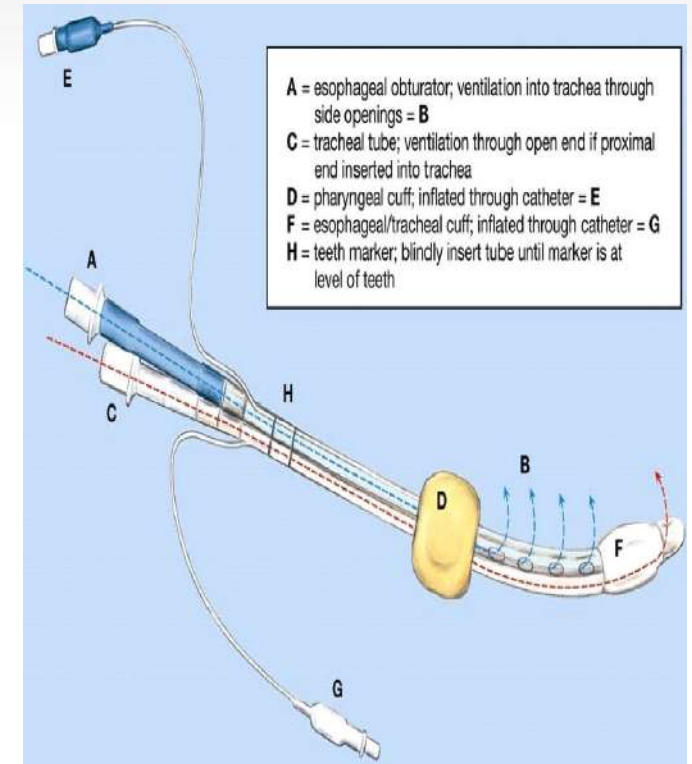


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# Advanced Airway Adjuncts: Esophageal-Tracheal Tube



- Advanced airway that is an acceptable alternative to the ET tube.
- The esophageal- tracheal tube is an invasive airway device with 2 inflatable balloon cuffs.
- The tube is more likely to enter the esophagus than the trachea, thereby allowing ventilation to occur through side openings in the device adjacent to the vocal cords and trachea.
- If the tube enters the trachea, ventilation can still occur by an opening in the end of the tube.





## Complications

- Esophageal trauma, including lacerations, bruising, and subcutaneous emphysema.
- The esophageal- tracheal tube is supplied in 2 sizes: the smaller size (37F) is used in patients 4 to 5.5 feet tall, and the larger size (41F) is used in patients more than 5 feet tall.

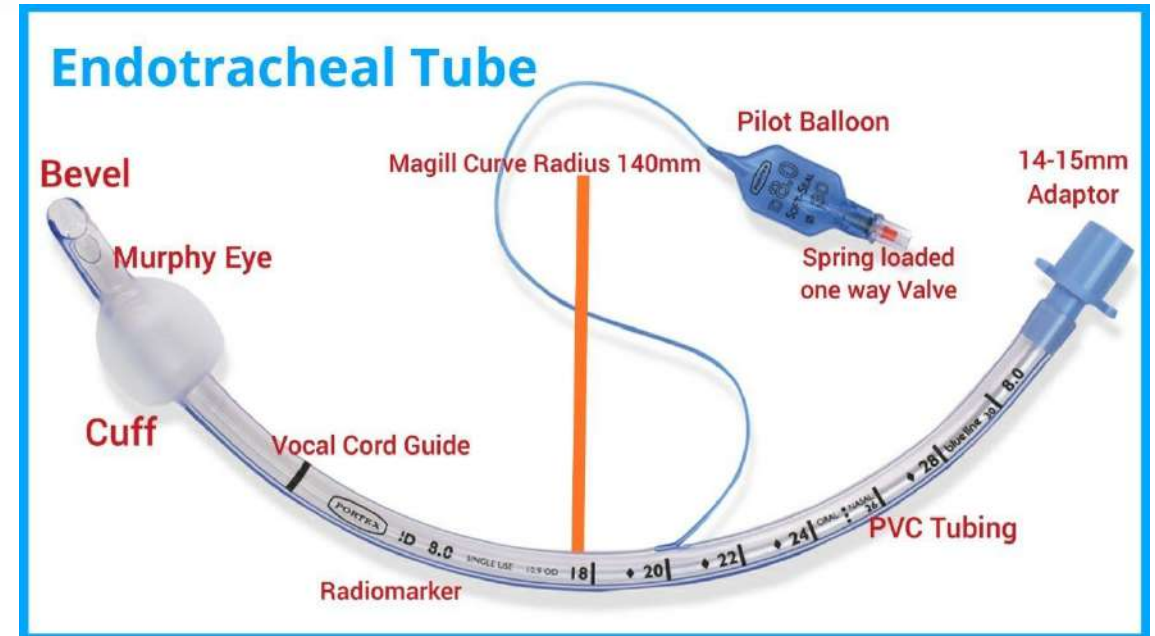
## Contraindications

- Responsive patients with cough or gag reflex
- Age 16 years or younger
- Height 4 feet or shorter
- Known or suspected esophageal disease
- Ingestion of a caustic substance

# ET Intubation



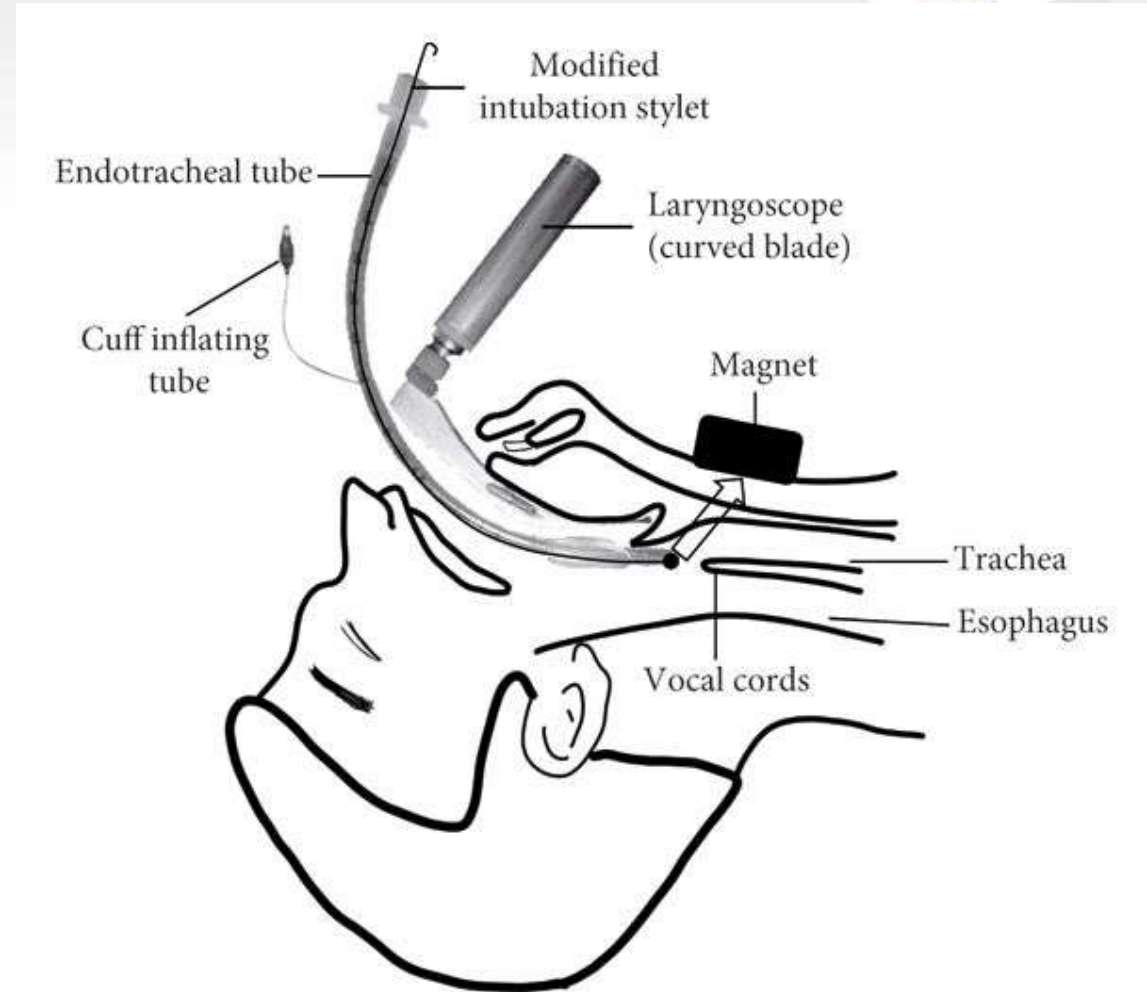
- Single-use, cuffed tube that facilitates delivery of a high concentration of oxygen and selected tidal volume to maintain adequate ventilation
- Placement requires visualization of the patient's vocal cords.



# The advantages of ET tube insertion...

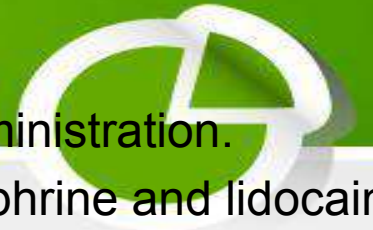


- Maintains patent airway
- May protect the airway from aspiration of stomach contents or other substances in the mouth, throat, or upper airway
- Permits effective suctioning of the trachea
- Facilitates delivery of positive end-expiratory pressure
- Provides an alternative route for administration of some resuscitation medications when intravenous (IV) or intraosseous (IO) access cannot be obtained
- Is ideal if longer-term ventilation is needed
- Provides the greatest compliance in situations that require higher airway pressure



- Naloxone, Atropine, Epinephrine, and Lidocaine.

# Emergency medications use with ET tube,



- The dose is approximately 2 to 2.5 times higher for ET tube administration than for IV/IO administration.
  - Mix the dose of the drug with 5 to 10 mL of normal saline or sterile water. Studies with epinephrine and lidocaine show that this method is effective.
  - After the medication has been administered through the ET tube, perform 1 to 2 ventilations to facilitate deposition of the drug.
  - Hold chest compressions very briefly during the instillation of the drug into the ET tube because compressions will displace the drug.
- 
- There were no efficacy and safety data regarding ET administration of **amiodarone**.



# CURVED & SINGLE BLADE



# Technique of ET Intubation



Step	Action
1	<i>Patient preparation:</i> Provide oxygenation and ventilation, and position the patient. Assess the likelihood of difficult ET tube placement based on the patient's anatomy.
2	<i>Equipment preparation:</i> Assemble and check all necessary equipment (ET tube and laryngoscope).
3	<b>Insertion technique:</b> Choose an appropriate size of ET tube. In general, a 7.5- to 8.00-mm internal diameter tube is used for adult males, and a 7.0- to 7.5-mm internal diameter tube is used for adult females. Choose the appropriate type (straight or curved) and size of laryngoscope blade . <ul style="list-style-type: none"><li>• Test the ET tube cuff's integrity.</li><li>• Secure the stylet inside the ET tube.</li><li>• Lubricate the ET tube.</li><li>• Place the head in the "sniffing" position.</li><li>• Open the mouth of the patient by using the thumb-and- index-finger technique.</li><li>• Insert the laryngoscope blade and visualize the glottic opening .</li><li>• Clear the airway if needed.</li><li>• Insert the ET tube and watch it pass through the vocal cords.</li><li>• Inflate the ET tube cuff to achieve a proper seal</li><li>• Remove the laryngoscope blade from the mouth.</li><li>• Hold the tube with one hand and remove the stylet with the other hand.</li><li>• Insert a bite-block.</li><li>• Attach a bag to the tube.</li></ul>



# Tube Trauma and Adverse Effects



- Brain damage or death
- – If the ET tube is inserted into a patient's esophagus, the patient will receive no ventilation or oxygenation unless he or she is still breathing spontaneously. If fails to recognize esophageal intubation, the patient could suffer permanent brain damage or die.
- Lacerated lips or tongue from forceful pressure between the laryngoscope blade and the tongue or cheek
- Chipped teeth
- Lacerated pharynx or trachea from the end of the stylet or ET tube
- Injury to the vocal cords
- Pharyngeal-esophageal perforation
- Vomiting and aspiration of gastric contents into the lower airway

# Indications for ET Intubation



- Cardiac arrest when bag-mask ventilation is not possible or is ineffective, or if a protected airway is needed
- Responsive patient in respiratory distress or compromise
- Patient unable to protect airway (eg, coma, areflexia, or cardiac arrest)

Parameter	Value
Respiratory rate	>35 breaths/min
Acute rise in PCO <sub>2</sub>	>50 mmHg with a decrease in pH to <7.30 or >10 mmHg from baseline
Tidal volume	<5 ml/kg

# Confirmation of ET Tube Placement: Qualitative and Quantitative Devices

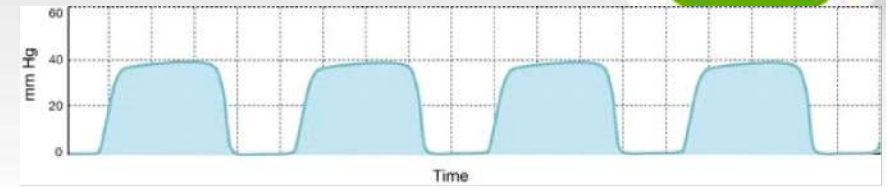


- The 2015 AHA Guidelines for CPR and ECC recommend confirmation of the ET tube with both clinical assessment and a device.

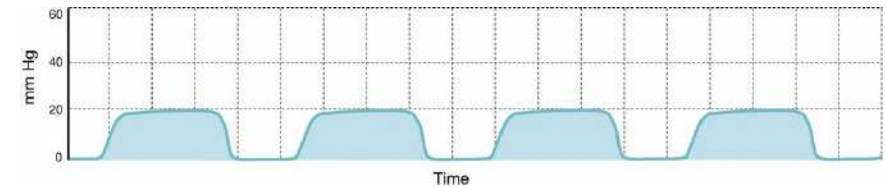
# Waveform Capnography



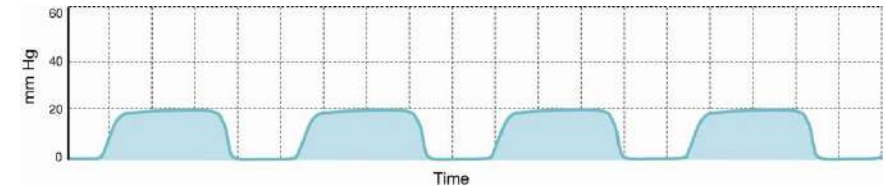
- Continuous waveform capnography, in addition to physical assessment, is recommended as the most reliable method of confirming and monitoring correct placement of an ET tube.
- To reduce the risk of unrecognized tube misplacement or displacement.



A



B



C

Waveform capnography. A, Normal range (approximately 35 to 45 mm Hg).

B Expected waveform with adequate chest compressions in cardiac arrest (approximately 20 mm Hg).

C ET tube incorrectly placed or dislodged (0 mm Hg).

# THE ACLS SURVEY (A-B-C-D)



**A**

- Maintain airway in unconscious patient
- Consider advanced airway
- Monitor advanced airway if placed with quantitative waveform capnography



**B**

- Give 100% oxygen
- Assess effective ventilation with quantitative waveform capnography
- Do NOT over-ventilate



**C**

- Evaluate rhythm and pulse
- Defibrillation/cardioversion
- Obtain IV/IO access
- Give rhythm-specific medications
- Give IV/IO fluids if needed



**D**

- Identify and treat reversible causes
- Cardiac rhythm and patient history are the keys to differential diagnosis
- Assess when to shock versus medicate

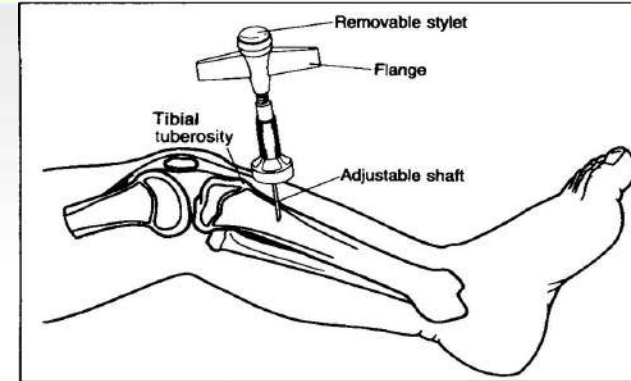


# ROUTES OF ACCESS



## INTRAVENOUS ROUTE

- A peripheral IV is preferred for drug and fluid administration unless central line access is already available.
- Placing a peripheral line does not require CPR interruption.
- If a drug is given via peripheral route of administration, do the following:
  - 1. Intravenously push bolus injection (unless otherwise indicated).
  - 2. Flush with 20 mL of fluid or saline.
  - 3. Raise extremity for 10 to 20 seconds to enhance delivery of drug to circulation



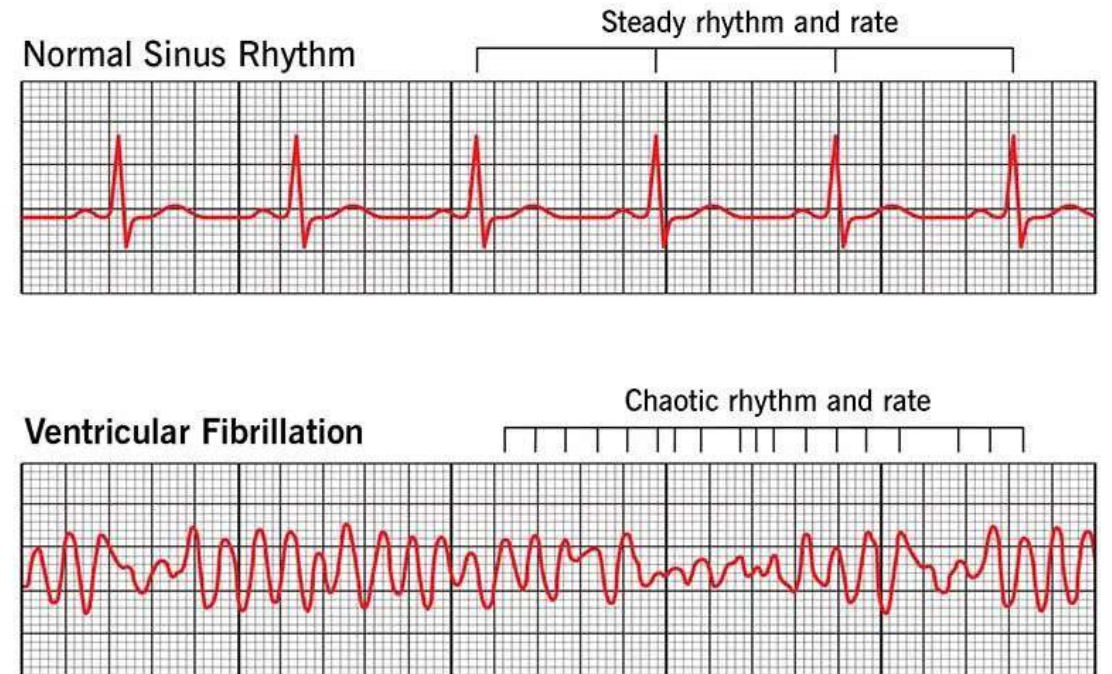
## INTRAOSSEOUS ROUTE

- The placement of a specialized hollow bore needle through the cortex of a bone into the medullary space for infusion
- **STERNUM, HUMERUS, DISTAL FEMUR, PROXIMAL & DISTAL TIBIA**

# VENTRICULAR FIBRILLATION AND PULSELESS VENTRICULAR TACHYCARDIA



- Ventricles consist of areas of normal myocardium alternating with areas of ischemic, injured, or infarcted myocardium, leading to a chaotic asynchronous pattern of ventricular depolarization and repolarization.
- Without organized ventricular depolarization, the ventricles cannot contract as a unit, and they produce no cardiac output. The heart “quivers” and does not pump blood.



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# RULES OF VF



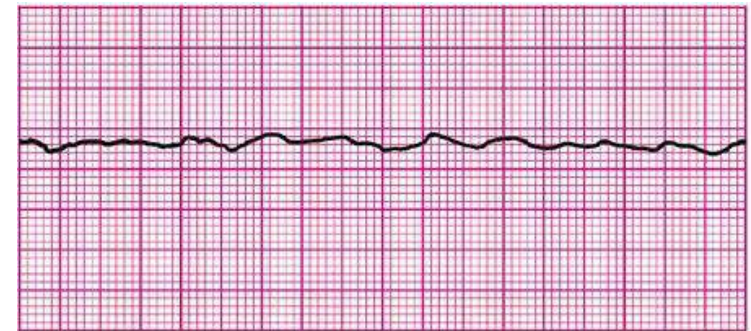
<b>REGULARITY</b>	<b>There is no regular shape of the QRS complex because all electrical activity is disorganized.</b>
RATE	The rate appears rapid, but the disorganized electrical activity prevents the heart from pumping
P WAVE	There are no P waves present.
PR INTERVAL	There are no PR present.
QRS COMPLEX	The ventricle complex varies
Amplitude	Measured from peak to trough; often used subjectively to describe VF as fine (peak to trough 2 to <5 mm), medium or moderate (5 to <10 mm), coarse (10 to <15 mm), or very coarse (>15 mm)



# CLINICAL--



- Pulse disappears with onset of VF
- – The pulse may disappear before the onset of VF if a common precursor to VF, rapid VT, develops before the VF.
- Collapse, unresponsiveness
- Agonal gasps or apnea
- Sudden death



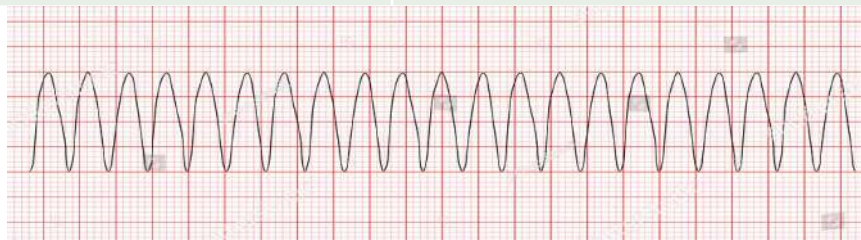
Coarse VF. Note high-amplitude waveforms, which vary in size, shape, and rhythm, representing chaotic ventricular electrical activity. B, Fine VF. Note the complete absence of QRS complexes.



# VENTRICULAR TACHYCARDIA (REGULAR/RAPID WIDE COMPLEX TACHYCARDIA)



<b>REGULARITY</b>	<b>R-R intervals are usual, but not always, regular activity is disorganized.</b>
RATE	The atrial rate cannot be determined. Ventricular rate is usually between 150 and 250 beats per minute.
P WAVE	QRS complexes are not preceded by P waves. There are occasionally P waves in the strip, but they are not associated with the ventricular rhythm.
PR INTERVAL	PR interval is not measured since this is a ventricular rhythm
QRS COMPLEX	QRS complex measures more than 0.12 seconds. The QRS will usually be wide and bizarre. It is usually difficult to see a separation between the QRS complex and the T wave.





# TORSADES DE POINTES (IRREGULAR WIDE COMPLEX TACHYCARDIA)



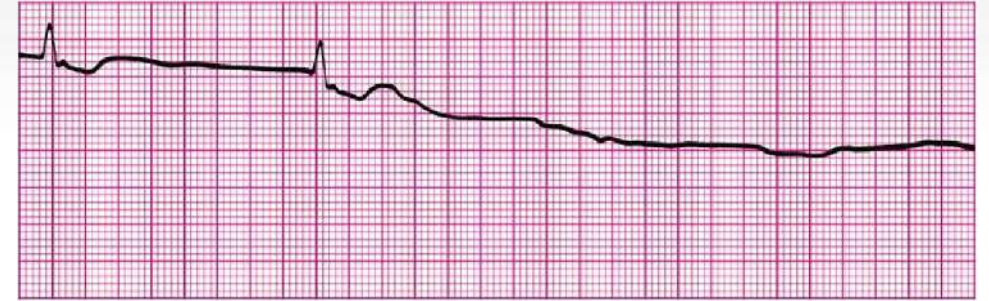
<b>REGULARITY</b>	<b>There is no regularity.</b>
RATE	The atrial rate cannot be determined. Ventricular rate is usually between 150 and 250 beats per minute
P WAVE	NO P WAVES
PR INTERVAL	NO PR INTERVAL
QRS COMPLEX	VARIES



# PULSELESS ELECTRICAL ACTIVITY AND ASYSTOLE



- A “flat line” is reserved for Asystole definition but PEA includes flat line as well as any other wave (except VF, VT, and SVT).
- Clinical Manifestations:
- Collapse; unresponsiveness
- Agonal gasps (early) or apnea
- No pulse or blood pressure
- Death



The “rhythm” of ventricular asystole.

This patient is pulseless and unresponsive.

Note: the 2 QRS-like complexes at the start of this rhythm display. These complexes represent a minimum of electrical activity, probably ventricular escape beats. Note the long section in which electrical activity is completely absent. This patient is in asystole at this point.

# RULES OF ASYSTOLE



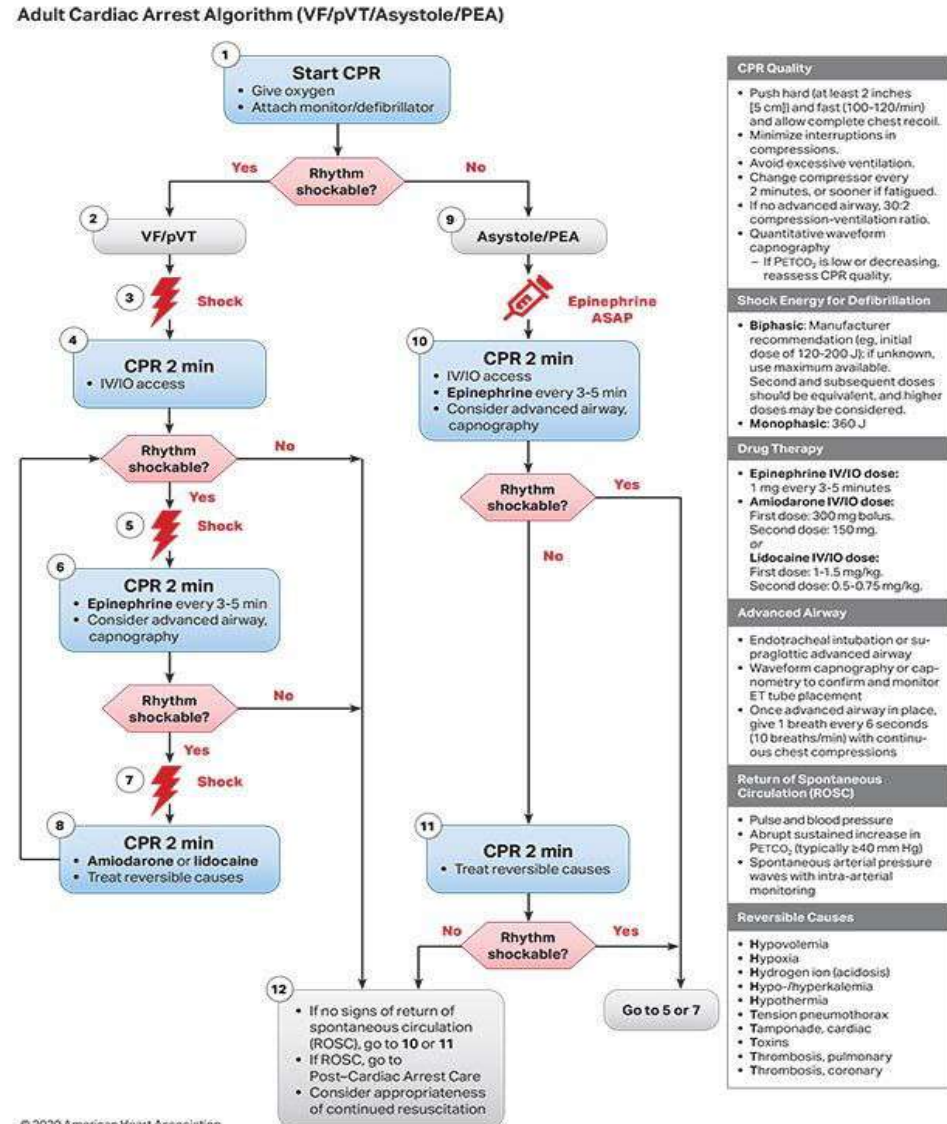
<b>REGULARITY</b>	<b>The rhythm will be a nearly flat line.</b>
RATE	There is no rate.
P WAVE	There are no P waves present.
PR INTERVAL	PR interval is unable to be measured due to no P waves being present
QRS COMPLEX	The ventricle complex varies
Amplitude	There are no QRS complexes present.

# RULES OF PEA (Pulseless electrical activity)



<b>REGULARITY</b>	<b>Any rhythm including a flat line (asystole).</b>
RATE	Any rate or no rate.
P WAVE	There are no P waves present.
PR INTERVAL	Possible P wave or none detectable.
QRS COMPLEX	Possible PR wave or none detectable.
Amplitude	Possible QRS complex or none detectable

# ACUTE CARDIAC ARREST ALGORITHM



- CPR Quality**
- Push hard (at least 2 inches [5 cm]) and fast (100-120/min) and allow complete chest recoil.
  - Minimize interruptions in compressions.
  - Avoid excessive ventilation.
  - Change compressor every 2 minutes, or sooner if fatigued.
  - If no advanced airway, 30:2 compression-ventilation ratio.
  - Quantitative waveform capnography
    - If PETCO<sub>2</sub> is low or decreasing, reassess CPR quality.
- Shock Energy for Defibrillation**
- **Biphasic:** Manufacturer recommendation (eg, initial dose of 120-200 J); if unknown, use maximum available. Second and subsequent doses should be equivalent, and higher doses may be considered.
  - **Monophasic:** 360 J
- Drug Therapy**
- **Epinephrine IV/IO dose:** 1 mg every 3-5 minutes
  - **Amiodarone IV/IO dose:** First dose: 300 mg bolus. Second dose: 150 mg.
  - **Lidocaine IV/IO dose:** First dose: 1-1.5 mg/kg. Second dose: 0.5-0.75 mg/kg.
- Advanced Airway**
- Endotracheal intubation or supraglottic advanced airway
  - Waveform capnography or capnometry to confirm and monitor ET tube placement
  - Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions
- Return of Spontaneous Circulation (ROSC)**
- Pulse and blood pressure
  - Abrupt sustained increase in PETCO<sub>2</sub> (typically ≥40 mm Hg)
  - Spontaneous arterial pressure waves with intra-arterial monitoring
- Reversible Causes**
- Hypovolemia
  - Hypoxia
  - Hydrogen ion (acidosis)
  - Hypo-/hyperkalemia
  - Hypothermia
  - Tension pneumothorax
  - Tamponade, cardiac
  - Toxins
  - Thrombosis, pulmonary
  - Thrombosis, coronary



# ADULT CARDIAC ARREST

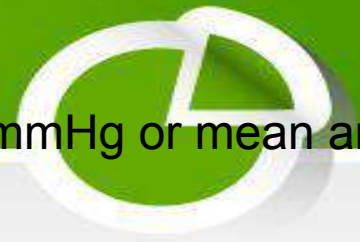


CPR Quality	<ul style="list-style-type: none"><li>• Push hard (2-2.4" (5-6 cm)) and fast (100-120 bpm) and allow chest recoil</li><li>• Minimize interruptions</li><li>• Do not over ventilate</li><li>• If no advanced airway, 30:2 compression to ventilation ratio</li><li>• Quantitative waveform capnography<ul style="list-style-type: none"><li>- If ETCO2 &lt;10 mmHg, attempt to improve CPR quality</li></ul></li></ul>
Shock Energy	<ul style="list-style-type: none"><li>• Biphasic: Biphasic delivery more effective than older monophasic waveforms. (e.g., initial dose of 120 to 200 J)</li><li>• Monophasic: 360 J</li></ul>
Return of Spontaneous Circulation	<ul style="list-style-type: none"><li>• Return of pulse and blood pressure</li><li>• Sudden sustained increase in PETCO2 (typically <math>\geq 40</math> mmHg)</li><li>• Spontaneous arterial pressure waves with intra-arterial monitoring</li></ul>
Drug Therapy	<ul style="list-style-type: none"><li>• Epinephrine IV/IO Dose: 1 mg, administer as soon as possible then every 3 to 5 minutes after</li><li>• Amiodarone IV/IO Dose: first dose is 300 mg bolus, second dose is 150 mg</li><li>• Lidocaine: 1st dose: 1-1.5 mg/kg, second dose: 0.5-0.75 mg/kg</li></ul>



## AIRWAY MANAGEMENT

- • Early placement of advanced airway
- • Manage respiratory parameters:
  - - Keep 10 breaths per minute
  - - Pulse Ox goal 92-98%
  - - Titrate to PaCO<sub>2</sub> 35-45 mm Hg
  - - Waveform capnography (capnometry) to confirm ETT placement



## • **BLOOD PRESSURE SUPPORT AND VASOPRESSORS**

- • Obtain early ECG.
- • Consider blood pressure support in any individual with systolic blood pressure less than 90 mmHg or mean arterial pressure less than 65 mmHg.
- Unless contraindicated, 1 to 2 liters of IV saline or Lactated Ringer's is the first intervention.
- When blood pressure is very low, consider vasopressors (commonly referred to as “pressors”).
- Consider using the following:
  - - **Epinephrine is the pressor of choice for individuals who are not in cardiac arrest.**
  - - **Dopamine and phenylephrine are alternatives to epinephrine.**
  - - **Norepinephrine is generally reserved for severe hypotension or as a last-line agent.**
  - • **Titrate the infusion rate to maintain the desired blood pressure.**

# Adult Immediate Post-Cardiac Arrest Care Algorithm



**VENTILATION/OXYGENATION:**  
 Avoid excessive ventilation. Start at 10 to 12 breaths per minute and titrate to target  $\text{PaCO}_2$  of 35 to 45 mmHg.

**DOSES/DETAILS**

**IV Bolus:**  
 1 to 2 liters normal saline or Lactated Ringer's.

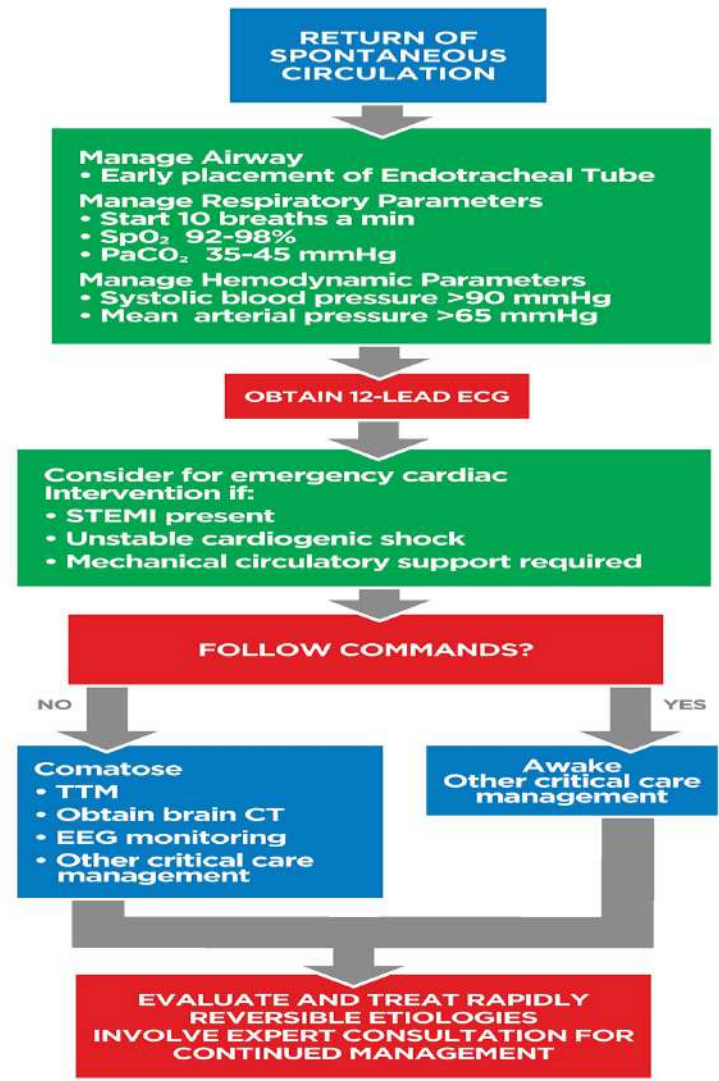
**Epinephrine IV Infusion:**  
 0.1 to 0.5 mcg/kg per minute

**Dopamine IV Infusion:**  
 5 to 10 mcg/kg per minute

**Norepinephrine IV Infusion:**  
 0.1 to 0.5 mcg/kg per minute

**REVERSIBLE CAUSES:**

- Hypovolemia
- Hypoxia
- $\text{H}^+$  (acidosis)
- Hypothermia
- Hypo-/hyperkalemia
- Tamponade, cardiac
- Toxins
- Tension pneumothorax
- Thrombosis, pulmonary, or coronary



# MANAGEMENT OF CHOKING





# INTRODUCTION



- Choking is defined as obstruction of airway by a foreign body. It can be often confused with fainting, seizure or even heart attack.
- If obstruction is not completely removed it may prove fatal.
- **DANGER SIGNS IN CHOKING:**
  - A) Victim unable to speak or only nods
  - B) Unable to breathe or WHEEZE
  - C) Silent cough
  - D) Unconscious victim



Universal sign  
of choking

# MANAGEMENT OF CHOKING/ FIRST AID

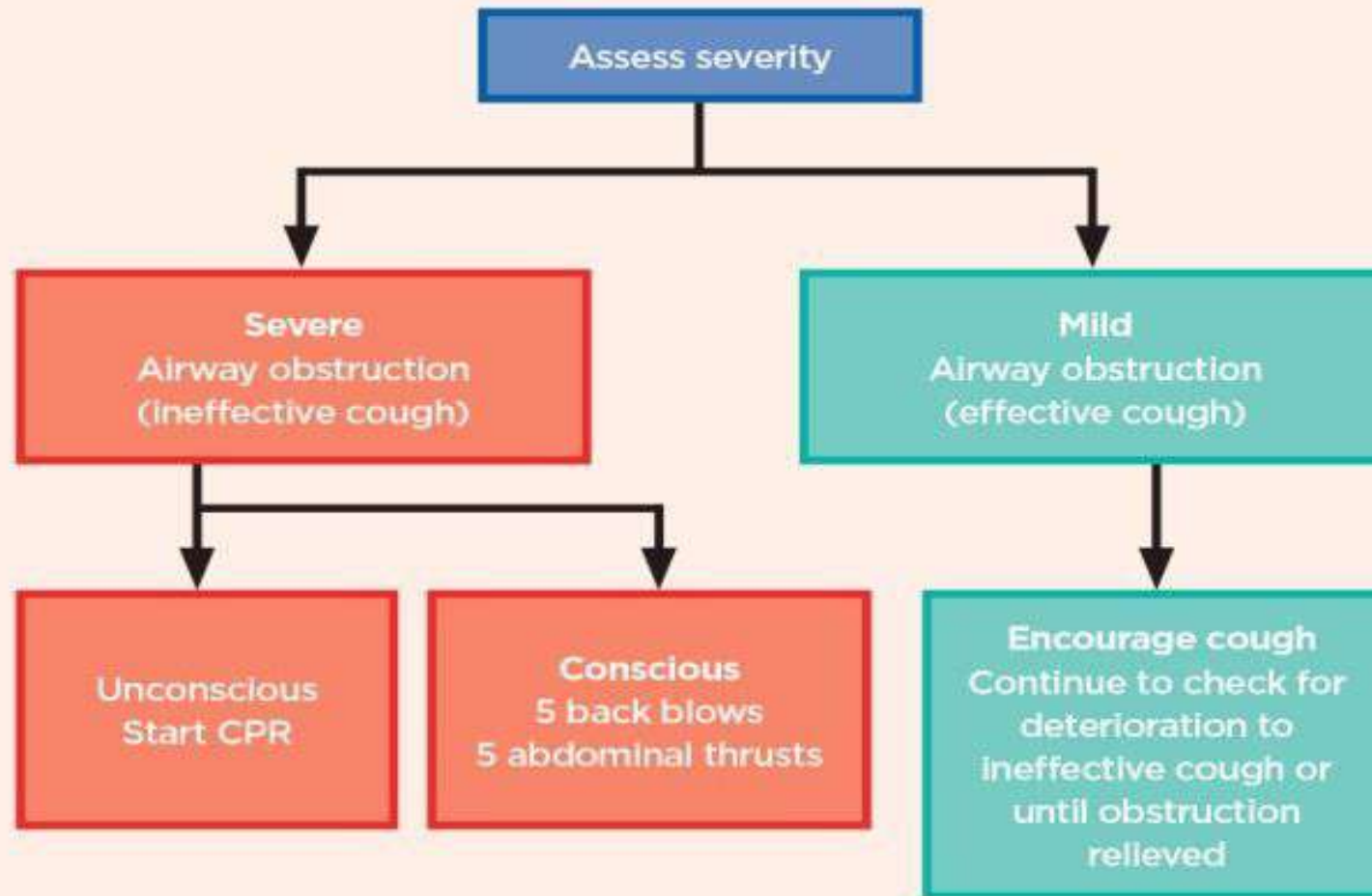


- Ask patient to cough  if coughing fails to remove object  Try to remove manually by opening mouth (Avoid pushing object deep down in airway)
- Activate EMS (Emergency medical services) if patient shows signs of exhaustion
- Now start doing 5 back blows f/b 5 abdominal thrusts & then combine them alternatively to completely clear the obstruction.
- If casualty is unconscious  Do BLS protocol as explained.
- If casualty expels object  Take a further medical opinion  Prevent complications like persistent cough, dysphagia or something stuck in throat.





Fig 1. **Adult choking algorithm**



CPR = cardiopulmonary resuscitation.  
Source: Perkins et al (2017)

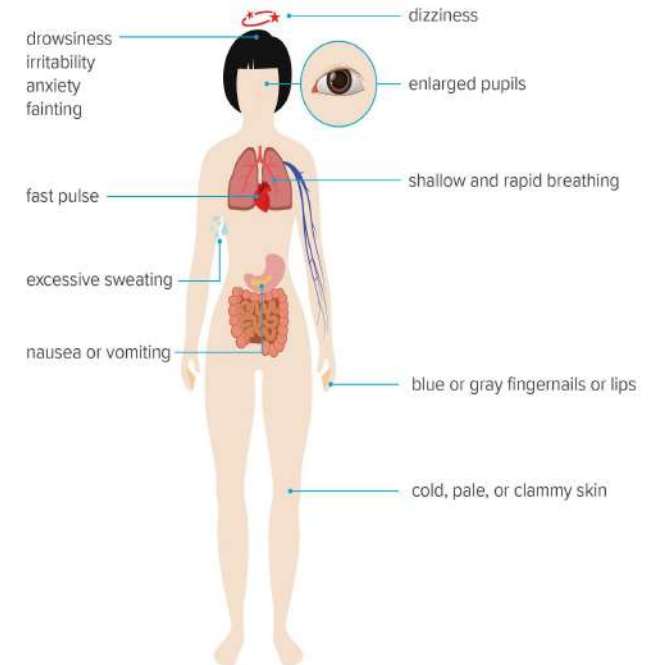
# MANAGEMENT OF BLEEDING & SHOCK

# INTRODUCTION



- A pathophysiological state where body's perfusion to organs can get disturbed leading to organ damage.
- **Mc type is hypovolemic a/w blood loss/dehydration.**
- Specifically in sports Bleeding can be of 2 types:
  - A) EXTERNAL:** Wounds, facial injury or nasal bleeding.
  - B) INTERNAL:** Head injury, Thoracic/Abdominal injury or long bone fractures
- **Here the Pulse rate/Blood pressure falls drastically leading to a set of cascade with compensatory mechanisms to maintain these parameters**

## Effects on the Body Shock





# CAUSES OF SHOCK



<b>Comparison of different types of shock</b>		
<b>Hypovolemic</b>	Hypotension, tachycardia Weak thready pulse Cool, pale, moist skin U/O decreased	Decreased CO <b>Increased SVR</b>
<b>Cardiogenic</b>	Hypotension, tachycardia Weak thready pulse Cool, pale, moist skin U/O < 30 ml/hr Crackles, tachypnea	Decreased CO <b>Increased SVR</b>
<b>Neurogenic</b>	Hypotension, BRADYCARDIA <b>WARM DRY SKIN</b>	Decreased CO <b>Venous &amp; arterial vasodilation, loss sympathetic tone</b>
<b>Anaphylactic</b>	Hypotension, tachycardia Cough, dyspnea Pruritus, urticaria Restlessness, decreased LOC	Decreased CO <b>Decreased SVR</b>
<b>Septic</b>	Hypotension, Tachycardia Full bounding pulse, tachypnea <b>Pink, warm, flushed skin</b> Decreased U/O, fever	<b>Decreased CO,</b> <b>Decreased SVR</b>

# MANAGEMENT OF BLEEDING



- **FOR MINOR CUTS & BLEEDS:** Irrigate wounds with copious amounts of saline & clean out any possible dirt/foreign object □ Allowed RTP after proper dressing
- **COMPLICATED DEEP CUTS:** If wound has a deep cut with risk of contamination □ Send athlete to medical room □ Clean wound with saline & use TT injection first □ Then use SUTURING as needed.
- **BLEEDING WITH FRACTURE:** Apply pressure over bleeding point & keep limb at level of heart with application of Tourniquet.
- **INTERNAL BLEEDING:** Seen with chest injury(haemothorax) or abdominal injury(Spleen/liver) or long bone #/pelvis# □ Sudden collapse □ needs hospital admission

# COMMON ON FIELD PROCEDURES FOR INTERNAL BLEEDING



**NEEDLE DECOMPRESSION**

**PELVIC BINDER**

# ASSESSMENT OF ACUTE BLEEDING ON FIELD:



- Take a complete history before first aid (Eg: Bleeding wound, chest pain , bee sting etc.)
- Take vitals  Low BP  Transport immediately to hospital
- **Open airway:** Clear out vomit, blood or obstruction in airway
- **Check breathing:** Rapid & labored is a danger sign
- **Check pulse:** Weak, thread like & irregular rhythm (??Arrythmia)
- **Look skin condition:** Cold clammy skin (Hypovolemia)
- **Check for blood loss:** Open wound, fracture, abdominal trauma
- **Check for allergic reaction:** Wheeze, stridor or soft tissue swelling
- **Level of consciousness:** Altered sensorium

# MANAGEMENT OF ACUTE BLEEDING



- Follow ATLS protocol (D- Danger, R- Response, A- Airway, B- Breathing, C- circulation)
- Give oxygen & stop bleeding by manual pressure or apply tourniquet if bleeding is well localized or Use Pelvic binder for pelvic fractures □ “ STOP BLOOD LOSS”
- Monitor Vitals continuously till patient reaches hospital. If Hypovolemia is suspected □ Pt can lie flat & his feet raised above head level to improve circulation (C/I in asthma)
- Insert large bore IV Cannula immediately & start IV Fluids □ Fluid Resuscitation in shock □ Prevents complications
- In cases of Epistaxis □ Apply manual pressure by pinching nose □ Fails □ Local adrenaline on cotton swab (1:10000) dilution to be applied on nasal mucosa



# MANAGING ACUTE TRAUMATIC SHOCK



# MANAGEMENT OF ANAPHYLAXIS





- Life threatening generalized hypersensitivity reaction leading to disruption of Airway, Breathing or circulation associated with skin/mucosal changes.

- COMMON RISK FACTORS:

**A) Insect bites like Bee & wasp stings**

**B) Food & Food additives (Eg: Peanut/fish/eggs)**

**C) Drugs (Eg: Aspirin, NSAID, Vaccines, Iron**

**injections)**

# CLINICAL SYMPTOMS



- **MENTAL STATUS:** FEELING OF IMPENDING DOOM
- **AIRWAY PROBLEM:** Airway swelling, stridor, hoarse voice
- **BREATHING PROBLEM:** Shortness of breath , wheeze, confusion/hypoxia & in later stages cyanosis □ Respiratory arrest
- **CIRCULATION PROBLEM:** Signs of shock as explained before
- **SKIN/MUCOSAL PROBLEMS:** Angioedema, urticarial rash, erythema

# MANAGEMENT & TREATMENT



- Follow ABC Protocol that involves use of 100% O<sub>2</sub> , securing airway, IV Line insertion cannula with management of vitals like BP, Resp. Rate, HR, O<sub>2</sub> saturation, skin color & capillary refill time.
- ADRENALINE: 0.5 MG IM ,Child < 6 years= 150 mcg & Child 6-12 years= 300 mcg. Always given IM WITH DILUTION OF 1:10000
- IV FLUIDS: Use of Colloids is more beneficial
- IM CHLORPHENIRAMINE(AVIL): 10 mg in adults
- IM HYDROCORTISONE(HYDROCORT): 200 MG in adults
- NEBULIZED SALBUTAMOL: For persistent bronchospasm





# MANAGEMENT OF SPINAL INJURY/HEAD INJURY



# INTRODUCTION



- Head injury are commonly seen in contact sports. It can range up fro a variety of injuries ranging from simple trauma to concussion to catastrophic traumatic brain injury
- MC associated with head injury is cervical cord injury. It can cause fatal complications.
- Warning signs indicating traumatic brain injury seeking medical attention:
  - A) ENT Bleed
  - B) Protracted Nausea, Vomiting & Photophobia
  - C) Altered sensorium
  - D) Inability to move hands & feet
  - E) Loss of consciousness or seizure like activity



- Amongst head injuries concussion can be easily missed □ Dazed look □ Player should be withdrawn for further evaluation like SCAT 5 (First ten mins are critical)
- If player with concussions □ sustains further injury □ Malignant cerebral edema □ Fatality & Death.
- Signs indicating C spine injury:
  - A) Inability to move neck in any direction
  - B) Inability to move hands/feet
  - C) Rapid collapse in BP & Pulse rate
  - D) Compromised respiratory effort

# MANAGEMENT PROTOCOL



- Withdrawal of player from site of injury is first & foremost priority. Make surroundings clear to ensure safety & medical personnel/support staff must be called immediately.
- Application of cervical collar must be done if suspecting C spine injury. Then secure airway/breathing by methods as explained earlier with use of supplementing oxygen.
- IV Fluids to maintain BP (if low)
- Once athlete is put on a collar victim is put on stretcher board by LOG ROLL maneuverer
- Pt. MUST BE TRANSPORTED TO A MEDICAL FACILITY EARLY WITH IMAGING INVESTIGATIONS ON PRIORITY.



# NEXUS CRITERIA FOR C SPINE IMAGING



# APPLICATION OF CERVICAL COLLAR



# LOG ROLL MANUEVERE





# MEDICAL BAG & ITS IMPORTANCE



# INTRODUCTION



- In all sports events its duty of management committee & sports physician to ensure medical supplies are appropriate as per event.
- A medical kit bag with basic essentials for first aid will gain priority here.
- **Certain adjuncts like ORS, Glucose tablets, eye pads, occlusive nasal sticks etc. can really prove useful.**



# What can a medical bag contain



## DRESSING/FIRST AID

- Surgical instruments for suturing wound
- A) Scissors & gloves
- B) Syringes & needles
- C) IV cannulas & infusion sets
- D) Skin disinfectant
- E) Nasal occlusive sticks
- F) Eye pads
- G) Dressing sets with band aid
- H) ICE PACKS
- I) DISINFECTANTS
- J) INFLATABLE SPLINTS
- K) RIGID TAPE/BRACES & IMMOBILIZERS

## FLUID/SUPPLEMENTS

- ORS
- A) GLUCOSE TABLETS
- B) 5% DEXTROSE (2)
- C) 3% HYPERTONIC SALINE (2)
- D) HEMACCEL (2)
- E) NS/RL (2 each)
- F) SALBUTAMOL/BUDECORT & IPRATROPIUM Respules.

## OTHER INSTRUMENTS

- STETHOSCOPE
- A) GLUCOMETER
- B) THERMOMETER
- C) BLANKETS
- D) PULSE OXYMETER
- E) NRBM MASK
- F) NEBULIZER
- G) CUPS & WATER BOTTLES
- H) NOTEBOOK FOR INVENTORY/DOCUMENTATION

# LIST OF SOME IMPORTANT LIFE SAVING DRUGS WITH DOSAGE:



- **EPINEPHRINE:** A) 0.5 ml of 1:10000 solution given IV every 3-5 mins
- B) 0.5 ml of 1:1000 solution given IM
  
- **ATROPINE:** 1mg can be repeated twice every 2-3 mins
- **AVIL:** 10 mg IM
- **HYDROCORT:** 200 mg IM
- **PHENARGAN:** 25 mg/50 mg deep IM
- **AMIODARONE:** 300 mg IV stat f/b 150 mg IV over 3-5 mins in CPR. Repeated after 3 failed cycles of CPR which included 2 shots of adrenaline.

# Doses, Routes, and Uses of Common Drug



DRUG DOSE	MAIN ACLS USE	/ROUTE	NOTES
Adenosine	<ul style="list-style-type: none"> <li>• Narrow PSVT/SVT</li> <li>• Wide QRS tachycardia, avoid adenosine in irregular wide QRS</li> </ul>	<ul style="list-style-type: none"> <li>• 6 mg IV bolus, may repeat with 12 mg in 1 to 2 min.</li> <li>• Rapid IV push close to the hub, followed by a saline bolus</li> </ul>	<ul style="list-style-type: none"> <li>• Continuous cardiac monitoring during administration</li> <li>• Causes flushing and chest heaviness</li> </ul>
Amiodarone	<ul style="list-style-type: none"> <li>• VF/pulseless VT</li> <li>• VT with pulse</li> <li>• Tachycardia rate control</li> </ul>	<ul style="list-style-type: none"> <li>• VF/VT: 300 mg dilute in 20 to 30 mL, may repeat 150 mg in 3 to 5 min</li> </ul>	<ul style="list-style-type: none"> <li>• Anticipate hypotension, bradycardia, and gastrointestinal toxicity</li> <li>• Continuous cardiac monitoring</li> <li>• Very long half-life (up to 40 days)</li> <li>• Do not use in 2nd or 3rd-degree heart block</li> <li>• Do not administer via the ET tube route</li> </ul>
Atropine	<ul style="list-style-type: none"> <li>• Symptomatic bradycardia</li> </ul>	<ul style="list-style-type: none"> <li>• 1 mg IV/IO every 3 to 5 minutes</li> <li>• Max dose: 3 mg</li> </ul>	<ul style="list-style-type: none"> <li>• Cardiac and BP monitoring</li> <li>• Do not use in glaucoma or tachyarrhythmias</li> <li>• Minimum dose 1 mg</li> </ul>
	<ul style="list-style-type: none"> <li>• Specific toxins/overdose (e.g. organophosphates)</li> </ul>	<ul style="list-style-type: none"> <li>• 2 to 4 mg IV/IO may be needed</li> </ul>	



<b>Dopamine</b>	<b>• Shock/CHF • Symptomatic bradycardia</b>	<b>• 2 to 20 mcg/kg/min • Titrate to desired blood pressure</b>	<b>• Fluid resuscitation first • Cardiac and BP monitoring</b>
Epinephrine	Cardiac Arrest	<ul style="list-style-type: none"><li>• Initial: 1.0 mg (1:10000) IV or 2 to 2.5 mg (1:1000)</li><li>• Maintain: 0.1 to 0.5 mcg/kg/min Titrate to desire blood pressure •</li></ul>	Note: <ul style="list-style-type: none"><li>• Continuous cardiac monitoring</li><li>• Distinguish between 1:1000 and 1:10000 concentrations</li><li>• Give via central line when possible •</li></ul>
	Anaphylaxis	<ul style="list-style-type: none"><li>• 0.3-0.5 mg IM</li><li>• Repeat every five minutes as needed</li></ul>	
	<ul style="list-style-type: none"><li>• Symptomatic bradycardia/Shock</li></ul>	<ul style="list-style-type: none"><li>2 to 10 mcg/min infusion</li><li>• Titrate to response</li></ul>	

<p>Lidocaine (Lidocaine is recommended when Amiodarone is not available)</p>	<ul style="list-style-type: none"> <li>• Cardiac Arrest (VF/VT)</li> </ul>	<ul style="list-style-type: none"> <li>• Initial: 1 to 1.5 mg/kg IV loading</li> <li>• Second: Half of first dose in 5 to 10 min</li> <li>• Maintain: 1 to 4 mg/min •</li> </ul>	<ul style="list-style-type: none"> <li>• Cardiac and BP monitoring</li> <li>• Rapid bolus can cause hypotension and bradycardia</li> <li>• Use with caution in renal failure</li> </ul>
	<ul style="list-style-type: none"> <li>• Wide complex tachycardia with pulse</li> </ul>	<ul style="list-style-type: none"> <li>• Initial: 0.5 to 1.5 mg/kg IV</li> <li>• Second: Half of first dose in 5 to 10 min</li> <li>• Maintain: 1 to 4 mg/min</li> </ul>	
<p>Magnesium Sulfat</p>	<ul style="list-style-type: none"> <li>• Cardiac arrest/ Pulseless torsades</li> </ul>	<ul style="list-style-type: none"> <li>• Cardiac Arrest: 1 to 2 gm diluted in 10 mL D5W IVP</li> </ul>	<ul style="list-style-type: none"> <li>• Cardiac and BP monitoring</li> <li>• Rapid bolus can cause hypotension and bradycardia</li> <li>• Use with caution in renal failure</li> <li>• Calcium chloride can reverse hypermagnesemia</li> </ul>
	<ul style="list-style-type: none"> <li>• Torsades de Pointes with pulse</li> </ul>	<ul style="list-style-type: none"> <li>• If not cardiac arrest: 1 to 2 gm IV over 5 to 60 min</li> <li>• Maintain: 0.5 to 1 gm/hr IV</li> </ul>	
<p>Procainamide</p>	<ul style="list-style-type: none"> <li>• Wide QRS tachycardia</li> <li>• Preferred for VT with pulse (stable)</li> </ul>	<ul style="list-style-type: none"> <li>• 20 to 50 mg/min IV until rhythm improves, hypotension occurs, QRS widens by 50% or MAX dose is given</li> <li>• MAX dose: 17 mg/kg</li> <li>• Drip: 1 to 2 gm in 250 to 500 mL at 1 to 4 mg/min</li> </ul>	<ul style="list-style-type: none"> <li>• Cardiac and BP monitoring</li> <li>• Caution with acute MI</li> <li>• May reduce dose with renal failure</li> <li>• Do not give with amiodarone</li> <li>• Do not use in prolonged QT or CHF</li> </ul>

# Thank you.



**FOR ANY QUERIES-**

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