

# **MEDICAL EMERGENCIES**

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## VASSODEPRESSOR SYNCOPE (SIMPLE FAINTING)

### Signs and Symptoms:

#### Early

Feeling of warmth  
Loss of color: pale or ashen-gray skin tone.  
Heavy perspiration.  
Complaints of feeling "faint"  
Nausea  
Normal or near normal blood pressure.  
Tachycardia

#### Late

Pupillary dilation  
Yawning  
Increased respiration  
Cold hands and feet  
Hypotension  
Bradycardia  
Dizziness  
Loss of consciousness

### Treatment of **Vassodepressor Syncope**

- 1) Position the patient supine with the feet elevated.
- 2) Assess breathing - LOOK, LISTEN, FEEL. Provide ventilation if needed.
- 3) Assess circulation - Provide circulation if needed.
- 4) Administer Oxygen
- 5) Monitor vital signs.
- 6) Definitive Management - Aromatic ammonia inhaler, cold towel, TLC.
- 7) If delayed recovery activate EMS.

## **ORTHOSTATIC HYPOTENSION**

### Predisposing Factors

#### Drug administration

Antihypertensives

Phenothiazines

Tricyclic antidepressants

Narcotics

Antiparkinsons

Prolonged recumbency and convalescence

Inadequate Postural Reflex

Pregnancy

Addison's Disease (chronic adrenocortical insufficiency)

### Treatment of **Orthostatic Hypotension**

- 1) Position patient supine with feet elevated.
- 2) Maintain airway
- 3) Administer Oxygen
- 4) Monitor vital signs
- 5) Slowly reposition patient
- 6) Discharge patient
- 7) If recovery delayed activate EMS.

## SEIZURES

Possible triggers to seizures

Emotional Stress  
Alcohol or Drug Use  
Flashing Lights  
Loud Music  
Hunger  
Fatigue

Secondary Questions with Seizures

What type of seizures?  
How often do they occur?  
Can you tell when a seizure is going to happen?  
How long does a seizure last?  
How do you feel after a seizure? Do you have a period of post seizure sluggishness?

### Treatment of **Grand Mal Seizures**

- 1) Terminate Treatment.
- 2) Prevent injury by protecting the patient.
- 3) Loosen tight or restrictive clothing
- 4) Allow seizure to end.

## HYPOGLYCEMIA

### Secondary Questions with Diabetes

How long have you had diabetes, and what type of treatment are you taking to control it?

How often do you monitor your glucose levels and what have the results been for the past few days?

How often do you have hypoglycemic episodes?

Can you tell when a hypoglycemic episode is going to happen?

### Signs and Symptoms

Moist Pale Skin

Confused Mental State

Lethargic

Seizures

### Treatment of **Hypoglycemia**

#### Conscious Patient

- 1) Recognize Hypoglycemia
- 2) Administer BLS as needed
- 3) Administer Oral Carbohydrate
- 4) Discharge patient to home or medical care.

#### Unconscious Patient

- 1) Recognize hypoglycemia
- 2) Activate EMS
- 3) Administer BLS as needed
- 4) Monitor Vital Signs
- 5) Administer parenteral therapy
  - 50% Glucose, 25 - 50ml IV
  - Glucocon 1mg IM
  - Epinephrine 0.5mg SC or IM
- 5) Administer Oral Carbohydrates When Conscious.

## CEREBRAL VASCULAR ACCIDENT (CVA)

### Prevention

No elective treatment for six months following CVA  
Stress Reduction.  
Avoid BP Fluctuations

### Signs and Symptoms

Headace  
Weakness on One Side  
Dimness or Loss of Vision  
Trouble Talking or Understanding Speech  
Loss of Consciousness

### Treatment of CVA in the **Conscious Patient**

- 1) Initiate BLS
- 2) Activate EMS
- 3) Administer oxygen,
- 4) Monitor Vital Signs
- 5) Position the patient comfortably
- 6) Head up if BP elevated
- 7) Discharge to Hospital.

# RESPIRATORY EMERGENCIES

## HYPERVENTILATION

Anxiety causes hyperventilation. This in turn causes respiratory alkalosis, decreased cerebral perfusion and increased levels of catecholamines.

### Signs and Symptoms

- Palpitations and Tachycardia.
- Dizziness, lightheaded, numbness in extremities.
- Anxiety, tension.
- Epigastric pain.

### Treatment of **Hyperventilation**

- 1) Remove Anxiety Causing Agent
- 2) Position patient upright
- 3) Re-breathe into cupped hands
- 4) Sedative Medications.
- 5) Discharge Patient.

## **AIRWAY OBSTRUCTION**

### Signs and Symptoms

- Weak ineffective cough
- High-pitched crowing on inhalation
- Use of accessory muscles to breath
- Ashen gray color of skin
- Cyanosis

### Treatment of **Airway Obstruction**

#### Adult - Conscious Victim

- 1) Confirm your help is needed
- 2) Heimlich until successful

#### Adult - Unconscious Victim

- 1) Activate EMS
- 2) Position patient in supine position.
- 2) Open Airway/Finger Sweep
- 4) 5 Abdominal thrusts.
- 5) Repeat Until Successful

## ASTHMA

### Pathophysiology:

Hyper-reactivity of the airway due to various stimuli. This hyperreactivity manifests itself as bronchospasm, bronchial wall edema and mucus secretion.

### Secondary Questions with Asthma

How often do you have an asthma attack?

What precipitates your asthma attack?

When was your last asthma attack?

What treatments do you use for your asthma?

Have you been hospitalized or gone to the ER for your asthma? If so, when?

How much do you smoke?

### Signs and Symptoms

Difficulty Breathing

Wheezing

Tachycardia

Anxiety

### Treatment of **Asthma**

- 1) Position patient upright
- 2) Administer bronchodilator - Albuterol 2 puffs
- 3) Administer Oxygen
- 4) Epinephrine 0.3mg to 0.5mg SQ/IM

# CARDIAC EMERGENCIES

## ANGINA PECTORIS

### Pathophysiology:

Chest discomfort associated with myocardial ischemia that occurs when myocardial oxygen demand exceeds supply.

### Secondary Questions with Angina

How frequently do you suffer angina attacks?

What precipitates an attack?

How long do your attacks last?

How does nitroglycerine affect the angina attack?

Has there been any alteration in the pattern of your episodes of angina in the last month?

### Signs and Symptoms:

Sudden onset of pain

Squeezing or tight chest

Radiation to shoulders, face, left arm.

subsides with rest or NTG.

### Treatment of **Angina**:

- 1) Terminate procedure
- 2) Administer Oxygen
- 3) Administer NTG
- 4) Repeat NTG q3-5 minutes
- 5) Modify dental therapy to prevent recurrence

## MYOCARDIAL INFARCTION

### Pathophysiology:

Prolonged myocardial ischemia that leads to irreversible myocardial damage.

### Secondary Questions with MI

When did you have your last MI?

Can you walk up a flight of stairs without getting short of breath or chest pain?

Do you get angina?

Have you had any interventional procedures such as, angioplasty, bypass surgery, internal pacemaker or an internal defibrillator? If so, when?

### Signs and Symptoms:

Squeezing or tight chest

Radiation to shoulders, face, left arm.

Does not subside with rest or NTG.

Feeling of impending doom.

### Treatment of **Myocardial Infarction**:

- 1) Treat as Angina
- 2) Initiate BLS as needed
- 3) Activate EMS
- 4) Monitor Vital Signs
- 5) Administer MONA (Oxygen, 325 Aspirin chewed 30 sec. then swallow, NTG and Morphine)
- 5) Relieve pain/anxiety with nitrous oxide/oxygen.
- 6) Transport to Hospital

## CARDIAC ARREST

### Pathophysiology

Clinical situation in which circulation of blood is absent or, if present, is inadequate to maintain life.

### Causes

Myocardial Infarction  
Sudden arrhythmic death  
Respiratory emergency  
Drug overdose  
Anaphylaxis

### Treatment of **Cardiac Arrest**

- 1) Position the Patient Flat
- 2) Activate EMS
- 2) ABC's of BLS
- 3) Transport to Hospital

# ALLERGIC EMERGENCIES

## ALLERGIC REACTIONS

In general the more rapid the onset of symptoms the more intense the allergic reaction.

### **Allergy** Skin Reactions Only

Treatment:

- 1) Position the patient comfortably
- 2) Monitor Vital Signs
- 3) Antihistamines  
    Benadryl 50mg IV/IM and/or  
    Benadryl 50mg PO q6hrs, for 3 days.

### Additional Respiratory Symptoms Present

Treatment:

- 1) Position the patient comfortably
- 2) Monitor Vital Signs
- 3) Administer Medications  
    Administer bronchodilator - Albuterol 2 puffs  
    Benadryl 50mg IV/IM  
    Epinephrine 0.3 -0.5 IM/SQ  
    Follow up with PO Benadryl

## ANAPHYLAXIS

### Pathophysiology:

IgE-antigen complex cause release of chemical mediator that cause a generalized bronchospasm and cardiovascular collapse. May or may not have signs and symptoms of allergy present.

### Signs and Symptoms

Rapid thready pulse  
Profound hypotension  
Respiratory Dyspnea, Wheezing  
Urticaria  
Abdominal Pain

### Treatment of **Anaphylaxis**

- 1) Position patient supine.
- 2) Initiate BLS
- 3) Epinephrine 0.3-0.5 mg SC/IM
- 4) Monitor Vitals
- 5) Additional Drugs
  - Benadryl 50mg IV/IM
  - Albuterol 2 puffs
- 6) Follow up with PO Benadryl

# **DRUG RELATED EMERGENCIES**

## **LOCAL ANESTHETIC OVERDOSE**

### Pathophysiology:

- Excessive dosage
- Slow biotransformation or excretion
- Rapid absorption at injection site
- IV administration

As blood level increases above toxic dose you go from excitation to depression.

Maximum Recommended Doses of LA		
Local Anesthetic	Max Dose (mg/kg)	Max Total Dose (mg)
Lidocaine	4.4 mg/kg	500 mg
Mepivacaine	4.4 mg/kg	300 mg
Bupivacaine	1.3 mg/kg	90 mg
Etidocaine	8 mg/kg	400 mg
Articaine	7mg/kg	500 mg

One Cartridge of 2% Lidocaine with 1to 100,000 Epinephrine has approximately 36mg of Lidocaine and 0.02 mg of Epinephrine.

Signs and Symptoms:

Talkative  
Apprehension  
Numbness of tongue and lips  
Lightheadedness/Dizziness  
Muscular twitching and Tremor  
Seizures  
Cardiac/Pulmonary Depression

**Treatment of LA Overdose:**

- 1) Position patient comfortably
- 2) Administer oxygen
- 3) BLS as needed
- 4) Monitor Vital Signs
- 5) Valium 2mg/min titrated to effect.
- 6) If depressive phase, activate EMS

## **EPINEPHRINE OVERDOSE**

### Maximum Doses

Healthy patient : 0.2mg epinephrine

Cardiac patient : 0.04mg epinephrine

### Signs and Symptoms:

Headache

Palpitations

Tachycardia

Anxiety/Restlessness

Perspiration

### Treatment of **Epinephrine Overdose:**

- 1) Supportive therapy
- 2) Administer Oxygen
- 3) Monitor vital signs
- 4) BLS as needed
- 5) Recovery and/or discharge

# Minimal Emergency Drugs

Anti-allergy – Epinephrine; \$0.65 - \$58.00  
Bronchodilator - Albuterol; \$25.50  
Antihistamine – Benadryl; \$1.80 & \$4.25  
Vasodilator – Nitroglycerine; \$4.90 - \$32.75  
Respiratory Stimulant; Ammonia Inhalants - \$3.50  
Anti-Hypoglycemic – Juice, Cake Frosting; \$1.50-\$3.50  
Thrombolytic – Chewable Aspirin; \$3.50

Total Cost \$41.35 to \$131.00

Southern Anesthesia  
(800) 624-5926

[www.southernanesthesia.com](http://www.southernanesthesia.com)

# Role Playing to Rehearse Medical Emergencies

Seating a crown ...

Your seating a crown and in spite of your best efforts the crown slips and is aspirated by the patient. The patient immediately clutches at their throat and looks at you with bugged out eyes. No sound is coming from the patient.

- What happened and what do you do?
- Imagine the same patient but they are not in severe distress, they are able to whisper that something is caught in their throat, and as of yet they can exchange enough air to keep from panicking. What do you do?
- Imagine the original patient but despite your best efforts you are not able to dislodge the crown and they become unconscious, what do you do?
- Imagine a similar patient as the original scenario, but this patient is asthmatic. You successfully dislodge the crown, but the stress and upper airway irritation of the aspiration triggers an asthmatic attack. What do you do?

The main points here are in discriminating between a partial airway obstruction and a complete one. For the complete airway obstruction the Heimlich maneuver is necessary. As you know this is different for the conscious and unconscious patient.

Upper airway irritation can lead to lower airway irritation. The asthmatic attack is treated with Albuterol inhaler and oxygen. If not successful, than epinephrine is administered.

For the patient able to talk, I would wait and see if the patient can cough it up and out. Knowing my luck, the patient would cough it up high enough to get it out of the airway and then swallow it.

Antibiotic premed ...

You order an antibiotic for a healthy 58 year old woman who just had a left total knee replacement. She took the 2.0 grams of Amoxicillin you ordered one hour ago. She complains of itching and has a rash spreading across her chest.

- What happened and what do you do? (Mild Allergy)
- Imagine the same patient, in addition to the rash she complains of wheezing and moderate trouble breathing. The patient is not in severe

distress, yet, but you recognize she is breathing fast and sounds wheezy. What do you do? (Severe allergy with respiratory symptoms.)

- Imagine this patient took her premed and arrives at your office within 15 minutes flushed and itching, dizzy, nauseous and feeling faint. What happened and what do you do? (Anaphylaxis because the unstable signs and symptoms.)

The main theme here is obviously allergic reaction with the three scenarios describing first mild allergic reaction, then more severe, and lastly true anaphylaxis. Follow the protocols in the handout.

Diabetic mother of twin toddlers ...

This patient arrives 10 minutes late for her appointment, rushed because the baby sitter she had arranged for her appointment fell through. It was an especially frantic morning with the kids crying and upset all morning. She says she didn't get a chance to brush her teeth, much less eat breakfast. She plugs the kids into a video in your waiting room, and sits in the chair. You start to give local and she gets pale, sweaty and lightheaded.

- What happened and what do you do?
- How could you avoid this problem in the first place?
- Imagine the same patient but despite your best efforts she becomes unconscious before you can begin treatment. What do you do?

Cool and sweaty is a hallmark of hypoglycemia. Hopefully her history makes it obvious, too. Treatment is to administer carbohydrate before she goes unconscious. Best to avoid this by asking if she wants some juice or something before you start treatment. In addition you could ask her to check her blood sugar prior to dental treatment and give carbohydrate accordingly. Once unconscious you are behind the eight ball. If you are comfortable starting an IV and you have IV dextrose to give, then in my opinion this is the best choice. If you are not comfortable with IV's, then EMS needs to be called immediately.

60 year-old overweight smoker ...

This patient starts complaining of chest pain after you begin treatment. It feels like a squeezing band around his chest.

- What is happening and what do you do?
- After treating with standard medications and waiting the appropriate amount of time, the pain does not subside. The patient starts getting light headed and weak. What is happening and what do you do?
- In front of you the same patient loses consciousness. You can not palpate a pulse. What is happening and what do you do?

This is an episode of angina leading to cardiac arrest. Follow the handout. An alternative scenario is to think of the patient not getting better after three doses of NTG, but still conscious. This is the patient who is a good candidate for MONA in the office and immediate transport to an ER.

90 year-old from the local care center ...

You were nice enough to see this patient from a local nursing home. The nursing home called this morning saying she broke a tooth, and asked if you could see her to evaluate what's needed. She arrives by herself via transport cab. She has a packet of papers none of which are her health history or medication list.

- What do you do?
- While your making your decision about what to do, she's still sitting in the waiting room. She makes a soft groaning noise and loses consciousness. What do you do?

The old adage is, "no good deed goes unpunished." This is not meant to be tricky, I just want you to perform the ABC's of BLS, but in a part of your office that you probably aren't comfortable doing it in. I think it is particularly useful to think how you are going to get oxygen, emergency drugs and perform CPR in your waiting room or even parking lot.