COMMON IN OFFICE EMERGENCIES

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Blood Pressure - Hypertension

- Every office should establish guidelines for treatment
- What is the patient’s baseline pressure?
- If hypertension is noted, what is the cause?
  - Is it acute or is it chronic?
  - If it is acute without symptoms, allow the patient to rest and recheck in 5-10 minutes
Blood Pressure - Hypertension

- If it persists, refer to physician
- If it resolves to baseline or near baseline proceed with treatment, if comfortable
- If it is acute with symptoms (headache, tinnitus) send to emergency department
- You can often be the first-line defense in referring patients with chronic blood pressure elevation to see a physician
Blood Pressure - Hypertension

- **Treatment of hypertension**
  - Rest and relax, make sure patient took prescription medication.
  - Contact physician, determine whether immediate consult or ED is warranted
  - With symptoms, administer oxygen, monitor
    - Nitroglycerin - sublingual tablet or spray (0.4mg) every 5 minutes as needed.
  - Continue to monitor
Blood Pressure - Hypotension

- For young healthy people, blood pressure can almost never be too low.

- For more medically compromised patients low blood pressure can be a problem
  - With signs of mental status changes or dizziness, a low blood pressure can be a problem, again either acute or chronic.
Blood Pressure - Hypotension

- Treatment of hypotension with symptoms:
  - All patients placed in supine position
  - Elevate legs
  - Other treatment depends on heart rate
    - With hypotension and tachycardia, administer fluids, oral or IV, and/or phenylephrine if IV in place.
    - With hypotension and bradycardia, administer ephedrine if IV in place.
  - Be careful with positional changes
Orthostatic Hypotension

- Sudden decrease in blood pressure with rapid positional changes.
  - From sitting to standing
  - From supine to standing
  - Most commonly results from poor autonomic nervous system reflexes or medications

- Common in young healthy people (athletes)

- Common in elderly population if on medications and following long appointment.
Orthostatic Hypotension

- Patient will report feeling light headed or lose consciousness with positional changes.
- Return to supine position as quickly as possible.
- Symptoms will resolve rapidly.
- Raise chair back incrementally, sit with feet on floor, stand without walking.
- Resume standing position slowly
Angina

- Prevention is a valuable tool in any patient with CVS pathology - stress reduction.

- Any new onset of angina is worrisome
  - More likely that 1st sign of chest pain in the dental office is myocardial infarction, not angina.

- Patients that have long standing angina are usually quite in tune with it
  - They usually know what precipitates and relieves it
  - Defined as stable angina
  - These are not really the people that you need to worry about
Angina

- The patient that has changes in occurrence, onset and/or severity are problems
  - Defined as unstable angina
  - Need medical clearance, more worrisome

- Some patients may bring their nitroglycerin with them.

You should have nitroglycerin tablets in your emergency kit watch for expiration, especially once opened.
Angina

- **Treatment**
  - Oxygen!!! cannula is OK, mask may be better (SPo2<94%)
  - Comfortable position, semi-supine
  - Monitor, dialogue
  - Aspirin x 4 81 mg chewable baby
  - Nitroglycerin - sublingual spray or tablet (0.4 mg) every 5 minutes until symptoms resolve and blood pressure remains >90-100 systolic.
  - Call 911
Angina

- Remember, 1\textsuperscript{st} sign of chest pain is often not angina when it occurs in the dental office

- Be careful with epinephrine dosage
  - Healthy patients can receive .2 mg of epinephrine
  - In cardiac patients stay below .04 mg
Myocardial Infarction

- Myocardium - heart muscle
- Infarction - death
- Not reversible, but can be limited with prompt recognition and treatment
- Postpone elective treatment for 6 months following MI
- Medical clearance for any emergency treatment that is needed within 6 months
Myocardial Infarction

Suspect MI in these situations:

1. New onset of chest pain, either at rest or with ordinary activity
2. Change in previously stable angina
3. Chest pain in patient with known coronary artery disease not relieved by nitroglycerin
Myocardial Infarction

- Treatment
  - Oxygen!!! canula is OK, mask may be preferable if hypoxic (SPO2 < 94%)
  - Comfortable position, semi-supine, patient may not want to sit or lay down
  - Monitor, dialogue
  - Nitroglycerin - sublingual spray or tab (.4 mg) every 5 minutes as long as blood pressure is > 90-100 systolic
Myocardial Infarction

- Call for assistance
- Start IV
- give aspirin x4 81 mg chewable
- NTG
- Continue to monitor ABC’s and vitals

- Remember **ONA!!**
- **Oxygen - Nitroglycerin - Aspirin**
Cardiac Arrest

- Heart rhythm will be either VF (ventricular fibrillation) or VT (ventricular tachycardia)
- Patient will be immediately unconscious
- Assess ABC’s
- Call 911/ Get AED
- Begin Chest Compressions
Cardiac Arrest

- Attach AED (automated external defibrillator)
- Follow voice prompts from defibrillator
- Continue Chest Compressions
- Begin Ventilations
- If trained establish IO access/advanced airway placement
- Follow ACLS protocol for medications and shocks
RESPIRATORY SYSTEM
Obstructive vs. Restrictive

- Restrictive diseases
  - Neuromuscular diseases
  - Skeletal deformities
  - Obesity
  - Lead to high respiratory rates and low tidal volumes = hypo-inflation
  - Not likely to see emergency situations arise solely from restrictive diseases
Obstructive vs. Restrictive

- Obstructive diseases (COPD)
  - Asthma
  - Emphysema
  - Bronchitis
  - Lead to low respiratory rates and high tidal volumes = hyper-inflation
  - Much more likely to see emergency situations arise form obstructive diseases
Asthma

- Disease associated with hyper-reactive airways. Leads to:
  - Increased wall thickness, increased secretions, bronchoconstriction
- Most patients that are well managed know what brings on an attack and how to treat it
- Even in this patient population, asthma is not a simple thing
- Brought on by many different stressors
Asthma

- Some patients sensitive to allergens or dust
- Others sensitive to emotional/psychological or physical stresses
- Many things in the dental environment can trigger asthma attacks
  - Stress
  - Fear
  - Pain
  - Chemicals - fumes or dusts
Asthma

- Treat only when patient is stabilized
- Avoid dental treatment if there is wheezing or if acute attack is in progress
- Always have inhaler nearby, preferably the patients’ own
- Stress reduction protocol
  - Nitrous oxide is a good idea
  - Pre-medication may be valuable
Asthma

- Treatment
  - Prevention is key, have patient use inhaler
  - Avoid undue stressors - fear, pain, allergens
  - Talk to patient
  - If acute attack occurs:
    - Give inhaler, consider oxygen
    - Comfortable position
    - If severe enough, epinephrine .3 mg either IV or IM, transport to ED
Emphysema

- “Pink puffers”, barrel chest
- Not likely to see an acute emergency from emphysema
- Treat as upright as possible
- If there is breathing difficulty with the patient, have him/her exhale through pursed lips
- Oxygen never hurts
Chronic Bronchitis

- “Blue Bloaters”
- Again, not a disease that will cause an acute emergency
- Treat as upright as possible
- Many patients will be on inhalers, use them
- Same treatment as for emphysema, but be careful with the % of oxygen
Dyspnea

- Dyspnea is one of the most common medical complaints.
- Usually described as “short of breath.”
- Not associated with any one disease
- Many different causes: CVS, CNS, RS, endocrine system, immune system
- Any mechanism that causes hypoxia.
Dyspnea

- The Dyspnea may be mild, to severe.
- The dyspnea may occur with exertion or may start while at rest.
Dyspnea

- Immediate concerns include:
  - Is the airway patent and stable?
  - What is the rate and depth of respirations?
  - Is the patient hypoxic?
  - Normal or abnormal breath sounds.
Dyspnea

- History of Respiratory disease?
- Onset sudden or gradual?
- Any chest pain?
- Evidence of infection?
- What medications?
Dyspnea differential diagnosis

- Pulmonary etiologies
  - Acute Asthma
  - Anaphylaxis
  - Aspiration
  - Pulmonary embolism
Differential diagnosis

- Cardiac etiologies
  - Acute MI
  - Pulmonary Edema
Differential Diagnosis

- Non Cardiac and Non Pulmonary causes
  - Anemia
  - Hyperventilation
Dyspnea

- Key Physical Findings
  - Mental Status
  - Look for signs of shock
  - Vital signs including lung sounds
Dyspnea

- Key Physical Findings

  - Skin
  
  - Accessory Muscles

  - extremities
Treatment

- Administer oxygen
- Monitor closely
- Call for assistance
- If significant respiratory distress is present, patient may stop breathing or gasp (agonal)
- If respirations are not sufficient to maintain oxygenation, assist with positive pressure
- If breathing stops, maintain at rate of 12-20 per minute, do not forget about checking CVS
Aspiration

- Foreign body airway obstruction
- Most cases can be avoided with diligent suctioning or use of ligatures
- If object goes missing it will end up in several different places
  - Back of throat
  - Larynx
  - Lungs
  - Stomach
Aspiration

- All objects must be accounted for
- Even if patient says he/she did not swallow or aspirate object, a chest x-ray must be done to confirm whereabouts
- If swallowed follow-up for several days
- If fully aspirated, treatment will depend on location, size, and type of material
Aspiration

- Objects that get lodged in the larynx will cause either full or partial airway obstruction
- Allow patients to manage a partial airway obstructions as long as they can phonate or until loss of consciousness
- Full airway obstruction must be managed immediately with the Heimlich maneuver
Aspiration

- As long as the patient is conscious, he will want to sit or stand up, let him.

- Once consciousness is lost, supine position, begin 30 chest compressions, look in airway, and attempt to ventilate. Repeat procedure until object is dislodged or able to ventilate.
CENTRAL NERVOUS SYSTEM
Hyperventilation

- More common in young females
- Stress induced
- Patient blows-off too much CO₂ with rapid breathing
- May see tetany or carpal-pedal spasm
- Most likely will not lose consciousness if diagnosed and treated quickly
Hyperventilation

- Treatment
  - Psychological - reassure patient that she will be OK
  - Have patient breathe into oxygen mask w/o O2 to increase amount of inspired CO2
  - Position comfortably
  - Cancel appointment
  - Consider pre-medication or nitrous oxide for next appointment
Vaso-vagal Syncope

- More common in young males
- Complex interaction between sympathetic and parasympathetic nervous systems
- Fight or flight mechanism starts working
- Patient can’t really do either, so body tries to readjust
- Ends up causing decreased perfusion to the brain
Vaso-vagal Syncope

- Consciousness may be lost, followed by a short seizure
- Look for signs and symptoms
  - Pale, cyanotic
  - Increased respiratory rate
  - Sweating, cold
  - Decreased heart rate and blood pressure
  - Feeling of nausea or vomiting
  - “I don’t feel too good”
Vaso-vagal Syncope

- Treatment
  - Supine position ASAP
  - Raise legs
  - Cold cloth to forehead
  - Oxygen
  - Can start IV and administer anticholinergic
  - Cancel appointment
Vaso-vagal Syncope

- Allow patient to rest for some time
- Arrange for a ride home if possible
- Warn patient that he is likely to experience recurrences for the next 24 hours
- Go home, lie down, get lots of fluids
Seizures

- Sudden, uncontrolled electrical discharge within the CNS that leads to abnormal sensory or motor function
- Not all seizures are grand mal
- Focal seizure - limited area of the brain, brief or no loss of consciousness
- General seizures - broken into several categories
Seizures

- Treatment
  - Clear Area
    - Don’t Restrain patient
    - Maintain airway without placing anything in the mouth
    - 911
    - If seizure lasts more than 2-3 minutes
    - Consider Intra nasal midazolam, 2-3 mg, or obtain IV access and administer midazolam or diazepam (5 mg) IV
Seizures

- More likely to experience seizure in next 24 hours
- Many patients will know when a seizure is coming on
- They will experience an aura
- Prevention is important
  - Make sure they are on their medications
  - Avoid triggers - flashing lights, loud music
Loss of Consciousness

- May result from systems other than central nervous system:
  - Respiratory - asthma, aspiration
  - Cardiac - arrhythmia, cardiac arrest, orthostasis
  - Endocrine - hypoglycemia, thyroid
  - Metabolic - electrolyte abnormalities, dehydration
  - Drugs
  - Behavioral (Pseudo Seizures)
Loss of Consciousness

- Until diagnosis is made, treat all LOC patients the same way
  - Supine position, preferably on the floor
  - Good airway management, will often be enough to keep patient breathing or even arouse patient
  - Ventilate if needed
  - Check circulation
  - Place monitors
Diabetes

- Disease where sugar is available in the system but not to the cells
- Type I - “insulin dependant diabetes”
  - Do not produce any insulin
  - Will need insulin to force sugar into the cells
  - More fragile than type II
  - Have significantly more systemic problems
Diabetes

- May have peripheral neuropathies, renal failure (dialysis), retinal degeneration, atherosclerosis, poor circulation (ulcerations, amputations)
- The more of these, the worse off the patient is
- Physician consultation may not be a bad idea

- Type II - “non-insulin dependant diabetes”, now see a lot of patients on insulin, do produce insulin, but not enough
Diabetes

- Not as fragile
- Will tolerate periods of hypoglycemia better
- Not as many significant systemic issues

- Treat all diabetics on their normal schedule
  - Unless there is reason for it, make sure they take their medications and eat a normal diet
  - Gets tricky when administering sedation
  - May need to work around dialysis schedule
Diabetes

- Signs and symptoms of hypoglycemia:
  - Confused, unconscious
  - Shallow respirations
  - Pale, cool, damp
  - Increased heart rate and blood pressure

- Signs and symptoms of hyperglycemia:
  - Confused, unconscious
  - Increased respirations and heart rate
  - Pale, warm, dry
  - Decreased blood pressure
Hypoglycemia

- Usually seen in diabetic patients, but not always
- Diabetic will take insulin or oral hypoglycemic medication and not eat
- Often seen with patients that are in pain and not on a normal diet
- Be careful with long appointments, allow time to eat or drink if possible
Hypoglycemia

- Most diabetics will be able to tell when their sugar is low
- As long as they are conscious, administer an oral sugar source:
  - Fruit drink
  - Cake icing
Hypoglycemia

- Symptoms should resolve fairly quickly
  - Cancel appointment and watch for a while
- Must monitor ABC’s
- With unconsciousness, 911

- Or establish IV access and administer sugar solution
  - D5W or D50
  - Glucagon - .5-1 mg IM, IV, or SC
Hypoglycemia

- Should regain consciousness quickly
- Monitor blood glucose if possible
- Never hesitate to call 911
- Have someone drive patient home
Hypoglycemia

- Must warn patients about post-operative intake and glucose monitoring
- Especially with larger oral surgery and periodontal procedures
- Patient may need to decrease insulin intake, or consult physician for advice
- Hypoglycemic episodes occur much more quickly than hyperglycemic episodes
- Keep ‘em sweet
IMMUNE SYSTEM
Allergic Reactions

- Several different types and severities of hypersensitivity reactions
  - Type I reactions - anaphylaxis/immediate
  - Type II reactions - usually associated with blood products
  - Type III reactions - onset may not be seen for several weeks - serum sickness or nephritis
  - Type IV reactions - delayed hypersensitivity, 24-72 hours after skin contact - latex
Allergic Reactions

- Our concerns are mostly with Type I and IV reactions
- Obviously, a good medical history will help prevent or eliminate most allergic reactions
- As a general rule, reactions will be much more severe with IV or IM applications than with oral or topical applications
Allergic Reactions

- Treatment of Type I reactions
  - Recognition
  - Severe anaphylaxis will manifest in all major systems:
    - Respiratory - wheezing, laryngeal edema, respiratory distress, airway obstruction
    - Skin - angioedema, pruritis, flushing, lesions
    - Cardiovascular - hypotension, tachycardia, dizziness, syncope, cardiovascular collapse
Allergic Reactions

- With appearance of even some of these signs, treat aggressively
- Stop administration of suspected agent(s)
- Initiate BLS protocol - ABC’s, oxygen, call for help, monitor
- Obtain IV access if trained
- Epinephrine - .3 -.5 mg IM or IV
Allergic Reactions

- Administer diphenhydramine, 25-50 mg IM or IV
- In a conscious patient with respiratory difficulty, give albuterol - many puffs
- May need to give positive pressure to assist with respirations
- If IV in place, give as much fluid as possible
- Consider steroids as soon as possible
Allergic Reactions

- With less severe or delayed allergic responses give PO diphenhydramine, 25-50 mg orally every 4-6 hours
- Alert physician to patient status
- Follow-up with phone call later
- Tell patient that if symptoms worsen to get to ED
Latex Sensitivity

- Normally manifests itself as a delayed hypersensitivity reaction
- Signs of contact dermatitis will show 4-6 hours after exposure and peak within 48 hours
- Usually a sharp line where the latex was in contact with the skin
Latex Sensitivity

- Treatment is the same as for a minor allergic reaction, PO diphenhydramine, 25-50 mg every 4-6 hours
- Prevention is the best treatment
  - Avoid latex gloves, rubber dams
- Susceptible patients will report allergies to avocados, bananas, chestnuts, will have worked in health care or around natural rubber, or have spina bifida
QUESTIONS?