# Medical Emergencies in Dental Practice

## KEY POINTS

- Be prepared
- Access to appropriate Drugs and Equipment
- Have good Training
- Take good Medical history

## COMMON EMERGENCIES:

1. **Collapse**
2. **Chest pain (cardiac ischemia)**
3. **Asthmatic attack (shortness of breath or dyspnea)**

### Suggested emergency equipments and drugs in dental clinic

- Glucometer
- Oxygen (O2) by mask: needed for all emergency cases except simple faint.
- Automated external defibrillator (AED): for CPR
- Adrenaline (epinephrine) injection ampule or epinephrine pen (epipen): for anaphylactic shock and severe asthmatic attack.
- GlucoGel formerly known as Hypostop gel and Glucagon ampule: for hypoglycemia.
- Ventolin:(Beta-2 agonist) Salbutamol inhaler: for asthmatic attack
- Buccal or intranasal midazolam: for epileptic fits
- Glyceryl tri nitrate: for ischemic chest pain.
- chewable aspirin tab.300 mg: for ischemic chest pain.

### Clinical Notes:

- The intramuscular (i.m.) injection is the method that is used for giving emergency medications.
- The most accessible site in a clothed patient sitting in a dental chair is the lateral aspect of the thigh, the ***vastus lateralis*** is a large muscle with no large nerves or arteries running through it, the midpoint between the pelvis and the knee is the preferred site.

# I. COLLAPSE

## Likely causes of sudden loss of consciousness and collapse

1. Simple faint (Vasovagal syncope)
2. Diabetic collapse secondary to hypoglycemia
3. Epileptic seizure
4. Anaphylaxis
5. Cardiac arrest

### Tips for reaching correct DX:

- ✓ Collapse at the sight of a needle or during an injection is likely to be a simple faint.
- ✓ Following some minutes after an injection of penicillin, collapse is more likely to be due to anaphylaxis.
- ✓ Collapse of a diabetic at lunch time, is likely to be caused by hypoglycemia.
- ✓ Collapse of a patient with angina or previous myocardial infarction may be caused by a new or further myocardial infarction and cardiac arrest.

## 1- SIMPLE FAINT (VASOVAGAL SYNCOPE)

Fainting (syncope) is the most common cause of sudden loss of consciousness, with spontaneous recovery.

Young, fit, adult males in particular are prone to faint, especially before, during and after injections. The diagnosis rely on the history.

### ✓ *Predisposing factors for vasovagal attack include*:

a) Anxiety
b) Pain
c) Fatigue
d) High temperature and relative humidity.

### ✓ *Signs and symptoms of a simple faint include:*

a. Dizziness, Weakness and Nausea
b. Pallor
c. Cold clammy skin
d. Pulse is initially slow and weak
e. Loss of consciousness.

✓ ***Pathophysiology (in brief):***

Parasympathetic activation that is carried by vagal nerve causing bradycardia with Vaso (vascular dilatation) which result in hypotension, reduced blood (oxygen) to brain and loss of consciousness

✓ ***Prevention (in clinic):***

The simple precaution of laying patients flat *before* giving injections may prevent fainting.

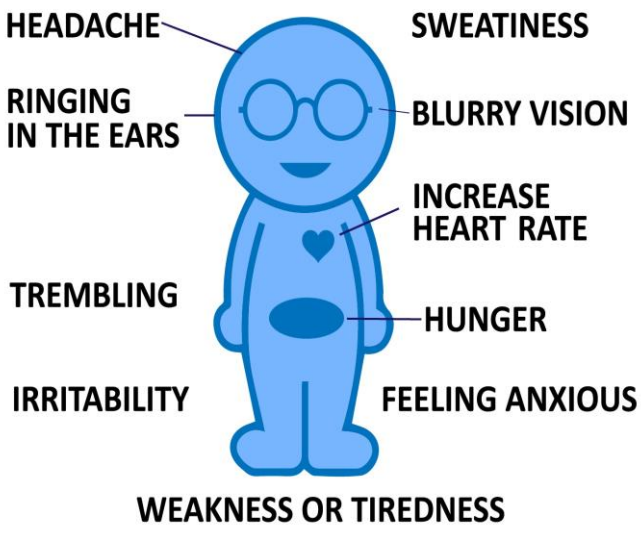
✓ ***Management:***

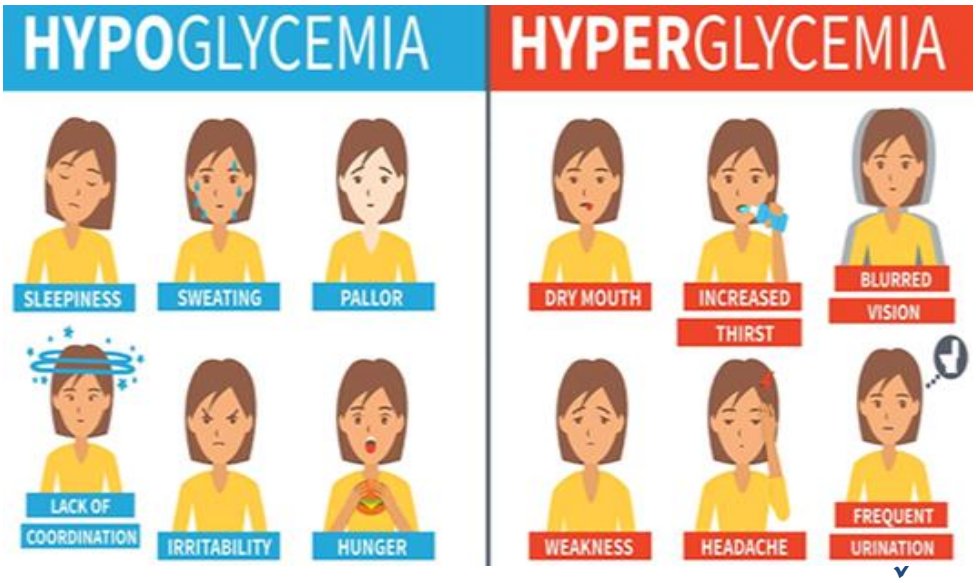
- Make the patient in flat supine position(left lateral for pregnant woman), ideally with his legs raised
- Leave him in this position until fully recovered

## 2- DIABETIC COLLAPSE: HYPOGLYCEMIA

- Hypoglycemia is the most dangerous complication of diabetes mellitus because the brain becomes starved of glucose and that's followed by coma.
- Diabetic patients who are treated with insulin have a greater chance of losing consciousness due to the insulin rapid effect on glucose deprivation.
- A collapse in a diabetic may be caused by other emergencies, for example a faint or myocardial infarction. Ischemic heart disease is common in long-standing diabetes.

✓ ***Signs and symptoms***






**Differences between hypo and hyperglycemia (better to be confirmed by glucometer)**

✓ ***Management:***

- For Hypoglycemic conscious patients: oral glucose as glucogel, juice…
- For Unconscious patient: glucagon ampule injection (acts within 5-10 min.)

## 3- ANAPHYLAXIS

Always take Hx about previous hypersensitivity reactions. Anaphylaxis is the most severe allergic response that should be managed quickly to save the patient life.

✓ ***Signs and symptoms***

- Facial flushing
- Urticaria rash and Angioedema
- Acute hypotension
- Bronchospasm
- Stridor (upper airway obstruction) or wheeze (lower airway obstruction)

✓ ***The Causal Agents Include:***

a) **Drugs**: penicillins – the most common cause, but also other antimicrobials (cephalosporins, sulfonamides), muscle relaxants, non-steroidal anti-inflammatory drugs (NSAIDs), opiates

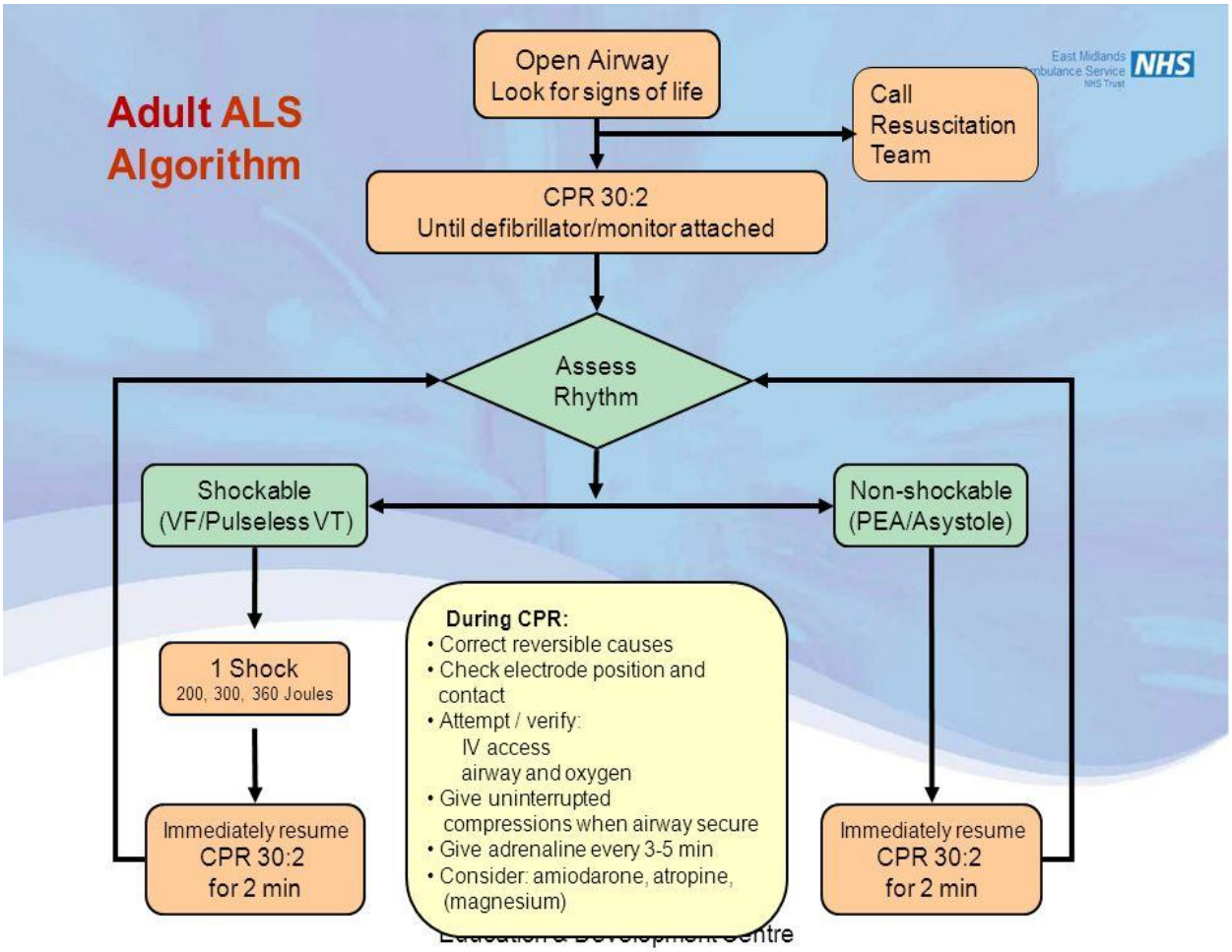
b) **Latex** as gloves and rubber dam
c) **Insect bites**

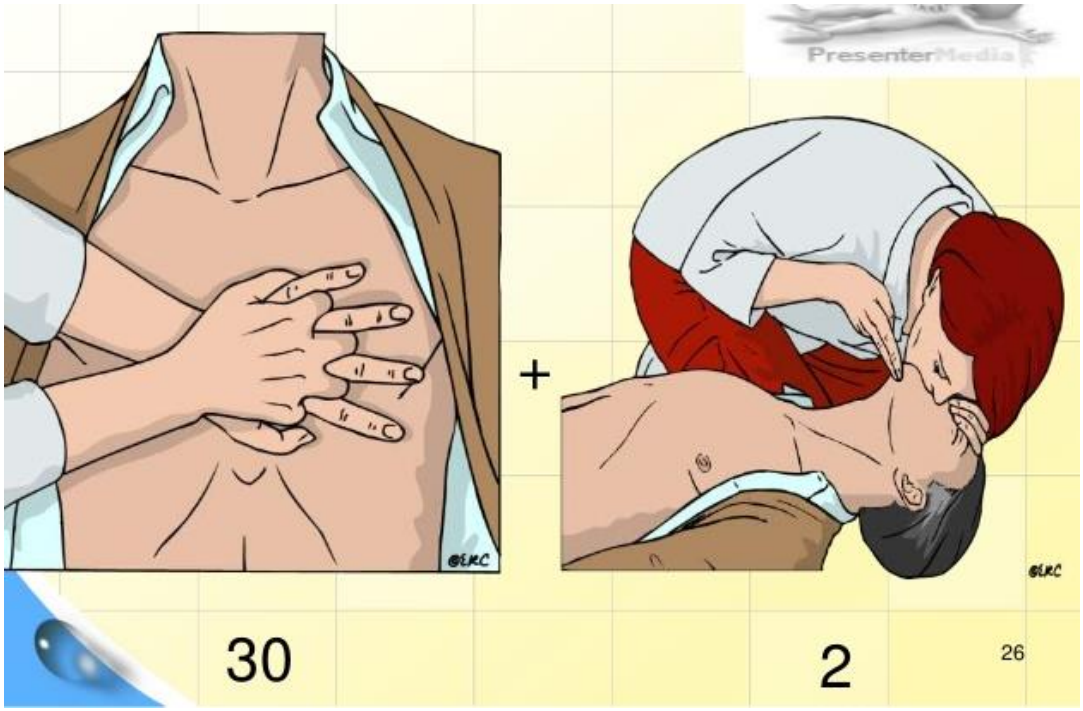
✓ ***Management***

- Epinephrine pen EpiPen ((0.3 ml (300 mcg)) or
- Epinephrine ampule I.M (0.5 ml of 1:1000) Repeat adrenaline I.M after 5 minutes if no improvement
- Salbutamol inhaler (Ventolin) if become wheezy chest

# 4- CARDIAC ARREST

- Cardiac arrest can occur in a patient with no previous history of cardiac problems, but is more likely in those with a history of IHD, diabetics and elderly.
- Ventricular fibrillation (VF) accounts for most sudden cardiac arrests.
- After airway and breathing assessment, basic life support (BLS) or (ATLS) needs to be initiated immediately.
- Start with chest compressions, at the middle of the lower half of the sternum, delivering 30 compressions in the first instance, before providing 2 rescue breaths.






## 5. FITTING (Epileptic Seizure)

✓ ***Clinically:***

- Many epileptics have a preceding aura (auditory or visual disturbances) followed by sudden loss of consciousness.
- Frequently, they are incontinent of urine and may bite their tongue.

✓ ***Predisposing Factors***

- Food abstinence (not eating).
- Cessation of anticonvulsant therapy.
- Menstruation.
- Alcohol
- Some drugs such as tricyclic antidepressants.

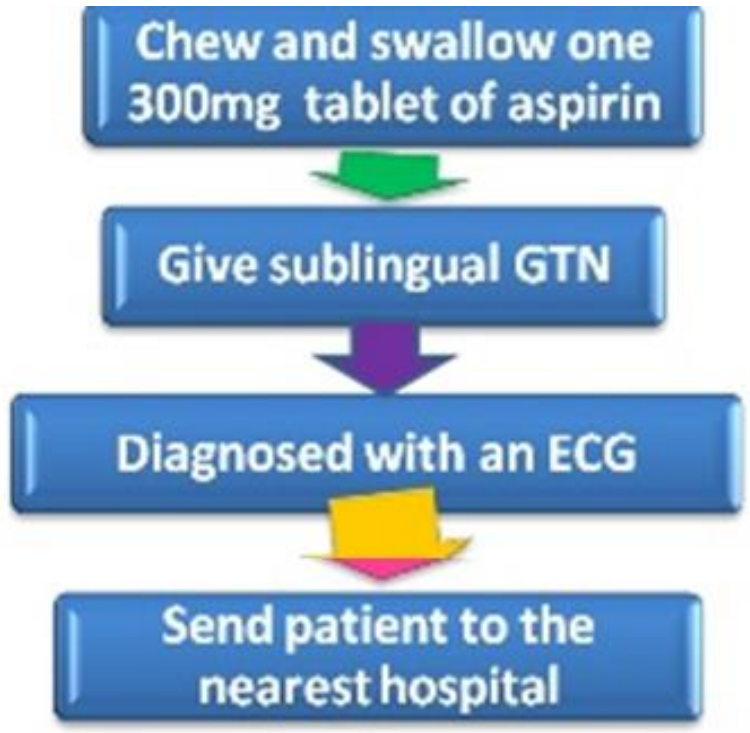
✓ ***Management:***

- Most seizures lasts for couple minutes (just remove the sharp objects away from the patient during the fit)
- If prolonged more than 5 minutes then it become emergency status epilepticus which need intervention (buccal or nasal midazolam 10mg which abort the fit)

# II. ACUTE CHEST PAIN

- Acute severe chest pain is usually caused by Ischemic Heart Disease IHD (angina or, less commonly, myocardial infarction).
- Both (angina and MI) exhibit severe retrosternal pain described as heavy, crushing.
- The attack is classically preceded by effort, emotion, or excitement, and may radiate to the arms, neck, jaw.
- Angina is usually rapidly relieved by rest and glyceryl trinitrate given sublingually, or GTN spray.
- Failure of the above methods to relieve the pain with coexisting (sweating, breathlessness, nausea, vomiting, or loss of consciousness, a weak or irregular pulse) suggest an infarction.
- Patients with 'unstable' angina and those with a recent history of hospital admission for ischaemic chest pain have the highest risk, and should not be considered for routine dental treatment in primary care.

✓ ***Management:***



# III. ACUTE SEVERE ASTHMATIC ATTACK

Asthma is a chronic disease of bronchial constriction with associated of dyspnea and reduced oxygenation.

### ✓ *Predisposing Factors*

- Anxiety
- Infection
- Exposure to an allergen
- Drugs may precipitate asthma

### ✓ *Diagnostic Features:*


### ✓ *Management:*

- Administer salbutamol (beta 2 agonist) by inhaler and a spacer device. Repeat every 5 minutes until resolved
- Epinephrine injection in case of severe life threatening attack.

**That's it! Good Luck**