



Diabetes, Altered Mental Status & Seizure Disorders

EMT-Basic



Chapter Overview

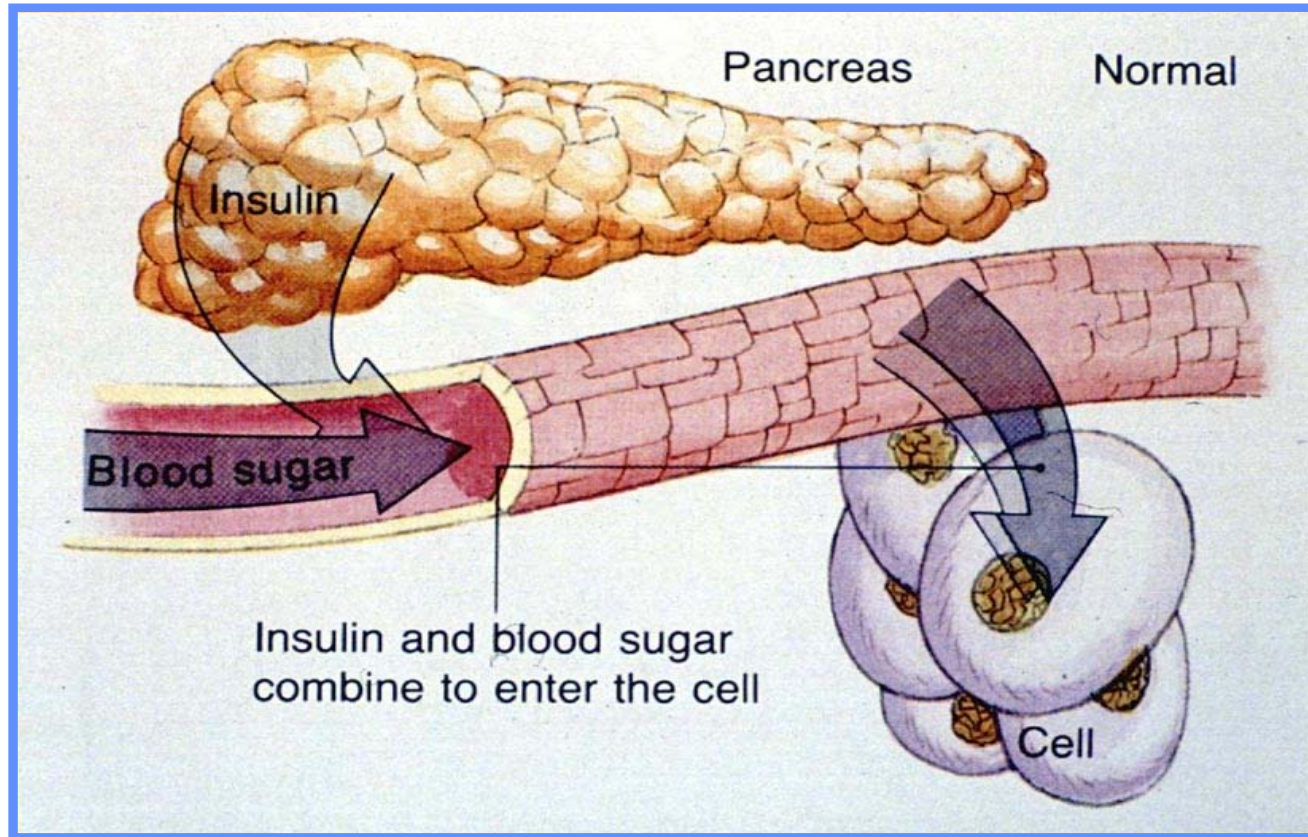
- We will discuss the types of diabetes and field management of the disease.
- We will discuss other causes of altered levels of consciousness and field management.
- We will discuss seizure disorders and field management.
- We will discuss the importance of ALS in all of these situations.



Diabetes Mellitus

- Diabetes is the failure of the body to produce or process insulin in adequate amounts to allow the body to properly utilize sugars in the form of glucose.
- Type 1 Diabetes: Sometimes called “juvenile” diabetes. Requires insulin injections or an insulin pump to maintain acceptable glucose levels in the system.
- Type 2 Diabetes: Sometimes called “adult onset” diabetes. May be controlled by diet, oral meds or require insulin injections.
- Check for needle marks – abdomen, thighs. These are typical areas for insulin injection – not drug abuse.

Insulin allows sugar to pass from the bloodstream into the cells.



Diabetes is treated with injections of insulin or oral medications.



Many diabetic patients test their blood glucose at home periodically each day to regulate their medications.





Ranges of Normal Blood Sugar Levels

- Normal is typically in the 80 – 115 + / - range.
- Abnormally low levels create a condition known as ***HYPOGLYCEMIA***. “Insulin shock” is another name for this.
- Excessively high levels of blood sugar create a condition known as ***HYPERGLYCEMIA***. “Diabetic coma” is another name for this.
- The brain must have adequate sugar to function properly.
- Prolonged hypoglycemia can produce brain damage.



Complications of Diabetes

- Early heart disease.
- Early stroke.
- Hypertension.
- Peripheral vascular disease (PVD).
 - Distal amputations of toes, feet, legs...
- Loss of vision.
- Slow healing wounds.
- Increased susceptibility to illness / infection.



Hypoglycemia

- Often very sudden onset – within minutes.
- Confusion, disorientation, decreasing LOC.
- Causes:
 - Excessive activity (much more than usual) that burns up sugars.
 - Too much insulin or other medication without eating.
 - Illness – vomiting.
 - Stress.
 - Unknown causes.
 - Pregnancy (may experience hypo or hyperglycemia).



Hypoglycemia Presentation (sudden onset)

- Dazed, confused or disoriented
- Unusual behavior
- Cold, clammy skin (insulin “shock”)
- Tachycardia
- May appear intoxicated
- Hunger, abdominal pains
- Seizures in severe cases
- Unconscious
- Argumentative / combative
- Slurred speech
- S&S of a stroke



Assessing the Hypoglycemic Patient

- Scene safety, BSI..... like all other calls.
 - ABC's.
 - General appearance.
 - SAMPLE history.
 - Focused exam.
 - Baseline vital signs.
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- Glucose measurement if family member is present to obtain the reading for you. (Optional EMT-B skill but not done in Howard County). ALS Providers can perform this skill.



Assessing Hypoglycemia

- How long ago did episode begin?
- When did patient take meds?
- When was the last meal?
- What has been done as far as interventions?
- Has this ever happened before?
- When was the person first seen or spoken with?
- Any other S&S's?
- Has the patient seized or is there any evidence of trauma?
- Can the patient tolerate glucose paste?



Treating Hypoglycemia

- Position the patient so the airway can best be managed.
- Administer oxygen.
- Prepare and administer oral glucose per Protocols.
 - If patient can drink allow them to drink a sugar containing drink. If able, allow them to self treat.
- Have suction available.
- Be prepared for patient to go through a variety of LOC's until they are fully alert.

**Squeeze glucose onto tongue depressor
and place between cheek and gums.**



**If patient awake enough, let her squeeze
oral glucose into mouth.**



**After the glucose has been administered
reassess patient.**



If the patient doesn't improve following glucose administration secure the airway and Seek Medical Direction.



Oral Glucose Administration



**Administer glucose per Protocols:
10 – 15 grams**

Does not require Medical Direction.

This should raise the circulating blood sugar level.

Oral glucose is essentially without side effects.

Have suction available.



Hyperglycemia (Diabetic coma)

- Gradual onset: many hours to days.
- Increased urine output.
- Excessive sugar intake.
- Discontinuation of diabetic medications.
- Typically found unconscious due to the gradual onset.
 - In the morning or couldn't be awakened following a nap.
 - Found by someone returning home.
 - May have a very sweet breath odor (acetone odor).
- When found unconscious you may not be able to differentiate between hypo or hyperglycemia.



Managing Hyperglycemia

- Assess as you did the hypoglycemic patient.
- If unable to differentiate between hypo and hyperglycemia treat as hypoglycemia.
- If you suspect hyperglycemia contact Medical Control and present your case.
- The amount of glucose you would administer by Protocols will not adversely impact the patients outcome should they be hyperglycemic.
- Manage them as you would any other unconscious person.



Seizures and Seizure Disorders

- A disturbance in the flow of electrical current through the brain.
- Many causes.



Seizure Disorders

- Some people with seizure disorders experience “early warning” that they are about to have a seizure:
 - Metallic taste in their mouth.
 - Experience an “aura” or knowledge that they are about to have a seizure.
- These people will often look for a safe place and lie down to avoid injury and embarrassment.



Seizures & Seizure Disorders

- Numerous causes:
 - Epilepsy
 - Congenital defects
 - Head injury
 - Prior or current CVA
 - Fever / infections
 - Hypoglycemia
 - Hypoxia.
 - Drug / poison / ingestion.
 - Brain tumor.
 - Alcohol withdrawal.
 - Numerous other causes.



Types of Seizures

- **Grand mal seizures:**

- Generalized body tremors and loss of consciousness.
- Incontinent.
- Episodes of apnea or inadequate breathing.
- Excessive body movement can cause trauma – especially to the head.
- Massive muscular contractions can break bones if restrained or restrained improperly.
- The patient may bite their tongue or inside of their mouth.
- **THEY CANNOT SWALLOW THEIR TONGUE!!**



Types of Seizures

- **Petite mal seizures:**

- Typically does not involve generalized tremors.
- May be unrecognizable:
 - Blank stare.
 - Period of unresponsiveness when the patient appears awake.
 - Mistaken by teachers as periods of inattentiveness.
 - Sometimes misdiagnosed as a behavioral problem.
 - Brief period of confusion or disorientation.



Assessing the Suspected Seizure Patient

- Usual scene evaluation.
- **SAMPLE** history.
- General assessment to r/o trauma.
- Duration of seizure?
- Description of seizure activity and any injuries found.
- Loss of bladder or bowel control?
- A period of confusion usually follows a seizure.
- Fever?



Managing the Seizure Patient

- Protect them from further injury – especially their head.
- **DO NOT** forcibly restrain the patient – protect them but do not physically restrain them during the seizure.
- **DO NOT** force anything between their teeth.
- Lie the patient on the floor and move any objects in the way.
- Use the recovery position if possible.
- Loosen restrictive clothing.



Managing the Seizure Patient

- Administer BVM oxygen until the patient breathes normally on their own then switch to a non-rebreather.
- Have suction ready.
- Protect from onlookers.
- Administer glucose if history of DM or with Medical Direction.
- Manage injuries.
- Continually talk to and orient the patient as they regain normal mentation. They will be temporarily confused.



Status Epilepticus

A life-threatening condition in which the patient has two or more convulsive seizures without regaining consciousness.

Can be life-threatening.



Managing Status Epilepticus

- Manage the airway and transport ASAP.
- Manage and maintain the airway.
- Administer high concentration oxygen.
- This is an ALS call. They can administer valium if indicated.



Other Causes of Altered Mental Status

- ETOH ingestion.
- Medication / drug / chemical ingestion, inhalation or absorption.
- Hypoxemia.
- Trauma.
- CVA.
- Carbon monoxide poisoning.
- Severe infection – septicemia.
- Unknown etiologies.



General Guidelines for Managing the Patient with an Altered Level of Consciousness

- ABC's.
- SAMPLE history.
- OPQRST.
- Protect the patient.
- Look for any evidence:
 - Pill bottles
 - Defective heater
 - Needle marks....
- Manage the airway, routine care, and seek Medical Direction as needed.