Diabetic Emergencies and Altered Mental Status
Key Term

Diabetes Mellitus

The condition brought about by decreased insulin production, or the inability of the body cells to use insulin properly (which prevents the body’s cells from taking the simple sugar called glucose from the bloodstream)
Insulin allows sugar to pass from the bloodstream into the cells.
Diabetes is treated with injections of insulin or oral medications.
Diabetic patients often test their blood glucose at home.
Hyperglycemia (high blood sugar) is a slow-onset condition from decreased insulin levels in people with diabetes.
Causes of Hyperglycemia

- Forgotten or insufficient insulin dose
- Infection
- Stress
- Increased dietary intake
Signs & Symptoms of Hyperglycemia

- Slow onset
- Nausea/vomiting
- Acetone odor on breath
- Increased urination/hunger/thirst
Hypoglycemia (low blood sugar) is a life-threatening emergency for people with diabetes. It is the most common emergency for the diabetic patient.
Causes of Hypoglycemia

- After taking too much insulin
- Vomiting
- After unusual amount of exercise
- Reduced sugar intake by not eating
Signs & Symptoms of Hypoglycemia

- Rapid onset
- Intoxicated appearance, staggering, slurred speech, unconsciousness
- Cold, clammy skin
- Rapid heart rate
- Seizures (severe cases)
Signs & Symptoms of Hypoglycemia

- Unusual or bizarre behavior
- Anxiety
- Refusal to cooperate or combativeness
Assessing Diabetic Emergencies

- Perform initial assessment.
- Perform focused history and physical exam.
- Get SAMPLE history.
  - Note any medical alert tags.
- Take baseline vital signs.
Assessing & Treating Diabetic Emergencies

Perform initial assessment.

- Maintain airway.
- Administer oxygen.

Continued…
Assessing & Treating Diabetic Emergencies

Perform focused history and physical exam.

- When & how did it start?
- How long did it last?
- Complaints of other symptoms?
- Any trauma involved?

Continued…
Assessing & Treating Diabetic Emergencies

Perform focused history and physical exam.

- Any medical alert tags?
- Has the patient seized?
- Fever?
- Interruptions in episode?

Continued…
Assessing & Treating Diabetic Emergencies

Obtain a blood glucose reading, if allowed by local protocols. Continued…
Assessing & Treating Diabetic Emergencies

- Get a SAMPLE history.
- If the patient has a history of diabetes:
  - When did patient last eat?
  - Any medications? Last taken?
  - Any other illnesses?
  - Can the patient swallow?

Continued…
Assessing & Treating Diabetic Emergencies

Take baseline vital signs.

* In some areas, protocols direct the EMT–B to treat the patient before getting vital signs.

FOLLOW YOUR LOCAL PROTOCOL!
Assessing & Treating Diabetic Emergencies

Give oral glucose if all of these conditions are met:

- History of diabetes
- Altered mental status
- Patient can swallow

Continued…
Assessing & Treating Diabetic Emergencies

- Reassess patient.
- If patient becomes unconscious, stop glucose administration immediately and secure the airway!
- If no improvement, consult medical direction.

Continued…
If patient is not awake enough to swallow:

- Secure airway.
- Administer oxygen.
- Position appropriately.
- Request ALS & transport.

Continued…
Blood Glucose Meters
Prepare blood glucose meter and test strip.
Cleanse skin with alcohol prep.
Use lancet to perform finger stick.
Apply the blood to test strip.
Read blood glucose test results.
<table>
<thead>
<tr>
<th>Blood Glucose Readings</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-120 mg/dl</td>
<td>Normal</td>
</tr>
<tr>
<td>60-80 mg/dl</td>
<td>Moderate hypoglycemia</td>
</tr>
<tr>
<td>Below 50 mg/dl</td>
<td>Severe hypoglycemia</td>
</tr>
<tr>
<td>Above 140 mg/dl</td>
<td>Hyperglycemia</td>
</tr>
</tbody>
</table>

Question results that are inconsistent with patient’s condition.
Causes of Inaccurate Reading

- Meter not calibrated
- Low batteries in meter
- Improperly stored or expired test strip
- Insufficient blood on test strip
Administration of Oral Glucose
Squeeze glucose onto tongue depressor and place between cheek and gums.
If the patient is alert enough, let her squeeze oral glucose into her mouth.
When the glucose is gone, remove tongue depressor and reassess patient.
If the patient loses consciousness, remove tongue depressor, secure airway, and transport promptly.
Oral Glucose

**Indications**
- Altered mental status with history of diabetes

**Contraindications**
- Unconsciousness
- Diabetic who has not taken insulin for days
- Inability to swallow
Oral Glucose

Dosage

- One tube
Oral Glucose

Administration

- Assure altered mental status with history of diabetes.
- Assure patient is conscious.
Oral Glucose

Administration

- Administer glucose on tongue depressor between cheek and gum or let patient self-administer.
- Perform ongoing assessment.
## Oral Glucose

### Actions
- Increases blood sugar

### Side Effects
- None when given properly
- May be aspirated if given to patient without gag reflex
Oral Glucose

Reassessment Strategies

If patient seizes or loses consciousness, remove tongue depressor and secure airway.
Altered Mental Status
Causes of Altered Mental Status

- Hypoglycemia
- Poisoning (including alcohol & drugs)
- Infection
- Head trauma
- Hypoxia
Emergency Care of Altered Mental Status

- Secure airway.
- Ventilate and suction as needed.
- Transport.
- Evaluate potential causes.
Emergency Care of Altered Mental Status

Treat patient as trauma patient if injury cannot be ruled out.
Seizures
Seizure

Sudden change in sensation, behavior, or movement caused by irregular electrical activity of the brain.
Causes of Seizures

- Toxin (including drugs & alcohol)
- Brain tumor
- Congenital brain defects
- Trauma
- Infection/Fever (#1 cause in pediatric patients 6 months to 3 years old)
Causes of Seizures

- Epilepsy
- Stroke
- Hypoglycemia
- Eclampsia (complication of pregnancy)
- Hypoxia
- Unknown
Information to Obtain

- What was the patient doing before seizure?
- What movements were exhibited?
- Loss of bladder or bowel control?
- What did the patient do after seizure?
- Length of episode?
Emergency Care During Seizures

- Place patient on floor.
- Position patient on side.
- Loosen restrictive clothing.

Continued…
Emergency Care During Seizures

- Remove harmful objects.
- Protect patient from injury; do not hold patient still or place anything in mouth.
Emergency Care of Seizures

After seizure subsides:

- Protect airway with positioning & suction.
- If cyanotic, ventilate with oxygen.
- Treat injuries.
- Transport.
Key Term

Status Epilepticus

A life-threatening condition in which the patient has two or more convulsive seizures without regaining consciousness.
Emergency Care of Status Epilepticus

- Secure the airway.
- Ventilate with 100% oxygen.
- Request ALS.
- Transport immediately.
Stroke

- Death or injury of brain tissue that is deprived of oxygen.
- Caused by a blockage (ischemic) or bleeding (hemorrhagic) of a blood vessel in the brain.
Signs & Symptoms of Stroke

- Intoxicated appearance, slurred speech, unconsciousness
- Severe headache, vision changes
- One-sided weakness on body
- Confusion
Signs & Symptoms of Stroke

- Loss of bladder/bowel control
- Unequal pupils
- High blood pressure
Transient Ischemic Attack (TIA)

- “Mini-stroke”
- Signs and symptoms of a stroke
- Often resolved before EMS arrival
- Symptoms resolve without treatment in less than 24 hours
- Significant risk of having a “full” stroke
Treatment of Stroke

- Prompt transport is critical.
- Identify potential stroke patients and notify the hospital.
- Maintain airway; administer oxygen.
Cincinnati Prehospital Stroke Scale

Have patient attempt to smile.
Have patient attempt to hold arms straight in front of them for 10 seconds.
Cincinnati Prehospital Stroke Scale

Evaluate patient’s speech.
Dizziness & Syncope

- Syncope is a brief loss of consciousness.
- It can occur at any age; more common in elderly.
- It may be an indicator of serious medical problem.
Causes of Dizziness and Syncope

- Hypovolemia
  - Trauma
  - Dehydration

- Metabolic
  - Hypoglycemia
  - Stroke
  - Seizure

Continued…
Causes of Dizziness and Syncope

Environmental/Toxicological
- Alcohol/Drugs
- Carbon Monoxide
- Panic/Anxiety

Continued…
Causes of Dizziness and Syncope

Cardiovascular

- Fast or slow heart rates
- Electrical system disturbance
- Vagus nerve stimulation
Assessment of Dizziness and Syncope

※ Obtain a SAMPLE history.
※ Ask about onset time, activities.
※ Length of episode?
※ Any previous episodes?

Continued…
Assessment of Dizziness and Syncope

- Any medications for this condition?
- Any nausea/vomiting/bowel changes?
Treatment of Dizziness and Syncope

- Administer high-concentration oxygen.
- Loosen restrictive clothing.
- Lay patient flat and elevate legs (if no suspected spinal injury).

Continued…
Treatment of Dizziness and Syncope

- Treat any associated injuries.
- Request ALS and transport.
1. List the signs and symptoms of hypoglycemia.

2. What questions should you ask in the focused history of a patient with a diabetic emergency?
3. What three conditions does a patient have to meet to be eligible for glucose?

4. What is status epilepticus and how should you treat it?

5. Explain the care steps for a patient with altered mental status.
Street Scenes

* Does this patient need a thorough assessment?

* What is the first concern when starting to assess this patient?
**Street Scenes**

- What types of underlying medical problems might make a patient appear to be drunk?
- Does your assessment plan change at this point?
How will you get a SAMPLE history if the patient is alone?

What is the priority level of this patient?

Is there a need for ALS assistance?
EMS called to the scene of what appears to be an intoxicated male patient. According to a deputy sheriff and a security guard, patient was found wandering down the midway of a fair, talking incoherently. Patient initially presents as agitated and mildly combative but eventually consents to medical evaluation. Patient is noted to be a diabetic via his medical identification bracelet. This is confirmed by a companion on scene. The patient took insulin but did not eat. The patient is verbally responsive, able to follow instructions, and able to protect his airway. We administered one tube of oral glucose on standing order. A tongue blade with the glucose was placed into patient’s mouth along cheek. After administration of glucose, patient became fully alert. He refused transportation to hospital. We contacted Dr. Stiglmeier at medical direction, who agreed with the refusal as long as patient agreed to eat a starchy meal and stay with a friend. Patient was advised of the potential dangers in refusal of care and signed a release witnessed by the deputy sheriff. Patient and his companion were advised of signs of diabetic problems and advised to call again if he had problems.