Altered Mental Status

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Title

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INTRODUCTION

What is altered mental status? Put simply, it is a change in a person’s normal level of mentation. A person with altered mental status may range from being comatose to being awake and alert but confused.

The brain functions best in a narrow and stable range of temperature, electrolytes, oxygen and sugar. Problems that affect any of these levels may affect the brain – this is the reason that people who are hypoglycemic, hypothermic, or hypoxic have altered mental status.

A patient with altered mental status can be among the most challenging you will see as an EMT. Unlike many other patients you will encounter, a person with altered mental status often can’t tell you what’s wrong.

Furthermore, the causes of altered mental status are very diverse, ranging from medical (hypoglycemia, stroke, seizure) to trauma (head injury, shock) to environmental (hypothermia, toxic inhalation).

You must use every tool at your disposal, from taking blood pressure and heart rate, to measuring pulse oximetry and blood sugar. You must become a detective, piecing together evidence that you gather from the exam, the history, the scene, and information from family, friends, or bystanders. This information that you gather is often unavailable to other medical providers at the hospital.

Many patients with altered mental status are critically ill or injured – your assessment and treatment of the patient can be lifesaving. Not only must you address the ABCs, but in many cases, the treatment is targeted to your assessment of the problem (for example, sugar for hypoglycemia, epinephrine for anaphylaxis, naloxone for opiate overdose).

ASSESSMENT

Scene Size-Up

An assessment of altered mental status begins with scene safety and scene size-up. The same things you notice to keep yourself safe at the scene may also provide clues to the patient’s condition.

Here are a few things to consider:

- Mechanism of injury
- Weather, ambient temperature
- Other people in the area
- Unusual odors at the scene
- Unrestrained animals
- Signs of a struggle
- Needles/drug paraphernalia
- Alcohol bottles
Patient Assessment

As you approach the patient, be aware of the following:

- Location found (bathroom, bedroom, garage)
- Position found (sitting up, prone, supine)
- Clothing (condition, damage or lack of clothing)
- Vomitus, loss of bowel/bladder control
- Unusual body form (obesity, emaciation, ascites)
- Unusual behavior (thrashing around, seizing, shivering)
- Obvious injuries, bleeding
- Odor of the patient (urine, ketoacidosis, infection, GI bleed)

As you arrive at the patient, your initial exam must determine if the patient has a pulse, adequate breathing, and no life-threatening bleeding. Next determine the patient’s level of consciousness. A person with altered mental status may range from being comatose to being awake and alert but confused. Obviously, you need a way to distinguish between these ends of the spectrum.

Use the AVPU mnemonic or the Glasgow coma score to categorize patients with altered mental status. If the patient is awake and alert, ask questions to determine the patient’s orientation (person, place, time, and event).

Remember to re-assess mental status frequently. Level of consciousness can change dramatically over time, providing important clues to the etiology of the patient’s altered mental status.

TREATMENT

Life threats such as respiratory arrest or life-threatening bleeding must be identified and addressed as soon as they are discovered. Once you have addressed life-threatening problems (or if airway, breathing, and circulation are intact) continue with your assessment and target your treatment to the patient’s presentation.

Unresponsive Male

An unresponsive man found crumpled inside a car that has struck a utility pole. His head is tilted forward and his mouth is filled with blood and teeth. He has a respiratory rate of 4. This patient’s airway must be opened immediately if he is to survive.
Oxygen
Some patients with altered mental status need no oxygen. Others need high flow oxygen and ventilation.

**Decreased LOC**
A 75-year-old female in a nursing home has decreased LOC according to staff. She responds slowly to questions and is disoriented. Her respiratory rate is 12, her lungs are clear and equal and her oxygen saturation is 98% on room air. Unless her condition changes, she doesn’t need oxygen right now.

**Unresponsive Female**
A 22-year-old presents after taking an overdose of unknown prescription medications that she got from “a friend.” She is drowsy but arousable with noxious stimuli only; if she is not continually stimulated, she becomes unresponsive. Her blood pressure is 110/90, heart rate is 72, and respirations are 10. Her oxygen saturation is 90. This patient would benefit from high-flow oxygen on a non-rebreather, and if her respiratory effort doesn’t improve with oxygen and stimulation, she may need to be ventilated.

**Ventilation**
A patient in respiratory failure or respiratory arrest must be ventilated. Don’t make the mistake of simply putting the patient on high-flow oxygen; oxygen will not by itself correct a problem with ventilation.

**MVA Victim with Head Injuries**
A 45-year-old motorcyclist has significant head injuries from crashing into a tree. He is unresponsive to all stimuli and has an irregular respiratory rate of 6 to 8. This patient needs to be ventilated with a bag-valve-mask and 100% oxygen. Try to time your ventilations to the patient’s own respiratory effort. This will help prevent filling the stomach with air.
Positioning
Most patients are positioned supine for easy assessment and care. However some patients with altered mental status will do better if positioned on their sides.

Post-Ictal After Seizure
A 26-year-old female is post-ictal after a seizure. She has a history of seizures, but is at work, and her co-worker was alarmed to witness the event. On your arrival, the patient is arousable to only noxious stimuli. Her vitals are stable. She is drooling and has bitten her tongue. This patient can be positioned on her side to allow secretions or blood to drain freely without threatening her airway.

Targeted Treatment
Some patients with altered mental status will benefit from specific targeted treatment, depending on your agency’s guidelines. Here are a few examples.

Allergic Reaction
An 18-year-old female who is allergic to peanuts calls 911 complaining of lightheadedness shortly after eating a stir-fry at a local restaurant. On your arrival, the patient is supine on the ground, moaning incoherently. Her blood pressure is 50 by Doppler. Her neck, trunk, and arms are covered with hives. This patient with altered mental status meets the criteria for the administration of intramuscular epinephrine to counteract her anaphylactic reaction.

Insulin Dependent Diabetic
A 35-year-old insulin-dependent diabetic man is found by his partner lying on the couch, arousable to voice but confused. His vitals are stable, but his blood sugar is 45. Since the patient is able to follow commands and swallow, he is given oral glucose. Over the next 10 minutes, his level of consciousness returns to normal and he is able to drink a glass of orange juice and then eat a sandwich. On re-check, his blood sugar is 212.

Drug Overdose
A 26-year-old male is discovered in the bedroom with a tourniquet around his arm and drug paraphernalia scattered around. A friend tells you he had overdosed on heroin in the past. The patient is unconscious and apneic with pinpoint pupils. His blood pressure is 130/80 and heart rate is 78. Since hypoxia is the immediate problem, the EMTs immediately begin ventilating the patient with high-flow oxygen via BVM. After a minute of ventilation, they then administer IM naloxone according to their guidelines. They continue to ventilate the patient until he suddenly awakens and pushes off the mask. He is alert and oriented by the time the ALS crew arrives to evaluate.
ALS Evaluation

Many patients with altered mental status will benefit from ALS evaluation and treatment. Determining the patient’s baseline will help you determine whether the altered mental status is new for the patient. For example, an 85-year-old male with end-stage dementia may be minimally responsive at baseline. This patient would not normally generally warrant an ALS, whereas the same presentation in a 32-year-old female with no past medical history would be far more concerning. Remember to continually evaluate level of consciousness throughout your time with the patient. Rapid changes or deterioration in mental status are very concerning.