

The Patient With An Altered Mental Status

Patti A Paris, MD
Alaska Native Medical Center

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Objectives

- Define altered mental status.
- Identify components evaluated in determining a patient's mental status and orientation.
- Identify the possible causes of altered mental status.
- Identify elderly considerations related to altered mental status.

Objectives cont'd

- Describe how to obtain an accurate Glasgow Coma Scale assessment.
- Describe the procedure to obtain a blood glucose determinant.
- Identify the components of the Cincinnati Stroke Scale.
- Describe methods of restraining the combative patient.

Objectives cont'd

- What diagnosis need to be identified in the field
- Case studies

Normal Mentation

- To identify abnormal mental status, need to understand what is normal
- We all practice a number of means and ways to identify the mental status
 - ✓ General appearance
 - ✓ Orientation to person, place, and time
 - ✓ AVPU
 - ✓ Alert
 - ✓ Responds to verbal stimuli
 - ✓ Responds to painful stimuli
 - ✓ Unresponsive

General Appearance

- Can gain important information looking at the “big picture”
 - Observe hygiene
 - Observe clothing
 - Observe overall appearance
 - Observe verbal and nonverbal behavior
 - Facial expressions
 - Tone of voice, volume, quality, speech pattern
 - Eye contact
 - Memory intact for recent and long-term events?
 - Is the patient focused; paying attention?

Orientation to Person, Place, Time

- Can be insulting to a patient to ask pointedly “what’s your name?” “who’s the president?”
- Often helpful to state:
 - “Since I don’t know your condition very well, I need to ask some very basic questions.”
- Person – patient can state their name
- Place – patient can recognize they are at home, in a store, in an ambulance, at a hospital
- Time – patient can tell what year it is and time of year (by month or season)

AVPU

- A – alert meaning the patient is awake
 - “A” is not meant to indicate orientation; just level of awakeness
- V – responding to verbal stimuli only
 - Any response including fluttering of eyelids is a positive response to calling the patient’s name or asking a command
- P – responding to “pain”
 - Could also indicate responding to tactile stimuli so do not always need to inflict a painful stimuli
 - Any response including fluttering of eyelids or any body twitch is a positive response
- U – unresponsive
 - Patient is flaccid with no responses at all

Stimulating a Painful Response

- Acceptable methods
 - Pressing on supraorbital ridge (bone below eyebrow)
 - Trapezium squeeze – twisting muscle where neck and shoulder meet
 - Rubbing sternum with knuckles
 - Pressing on finger nail bed
- Unacceptable methods
 - Any technique that would leave bruising
- Discouraged methods
 - Any stimuli that may cause movement of the c-spine in a trauma patient by pulling away from the stimuli

Altered Mental Status

- Patient not awake, not alert or not oriented
 - Patient not aware of their environment
 - Patient not oriented to person, place, time
 - Patient confused
 - Patient unable to demonstrate an understanding of what is being said
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- ***Most important is noting any change over the course of time in level of consciousness***

Level of Consciousness

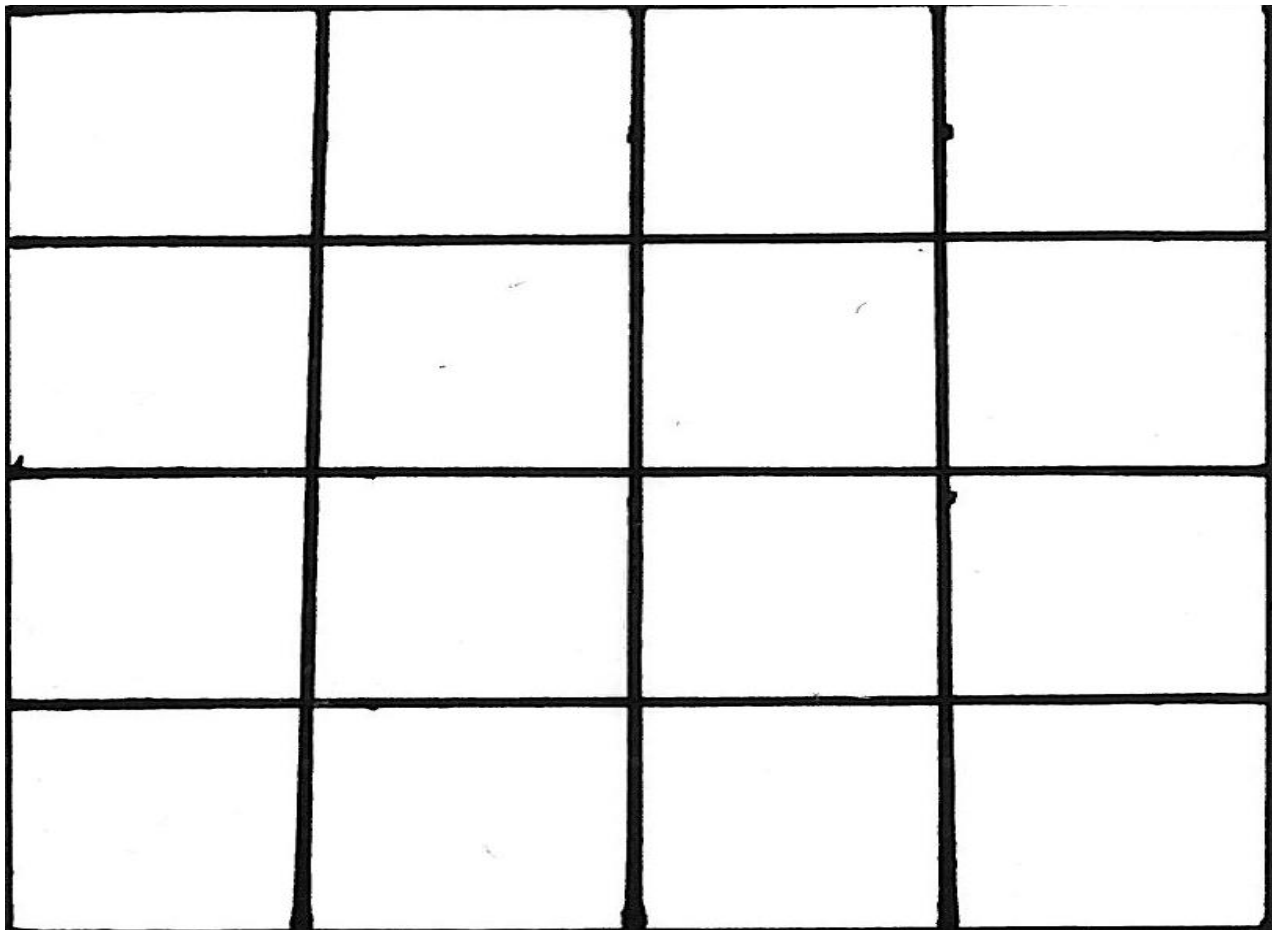
- One of the **first** indicators to change when the level of perfusion is diminishing is level of consciousness
- FYI – The blood pressure is one of the **last** indicators to change when the level of perfusion diminishes

Possible Cause of Altered Mental Status

- Many lists have been created
- Mnemonics have been created to trigger lists
 - AEIOU-TIPS
 - SMASHED
- EMS should think outside the box and look for all potential causes
 - When you find one cause, keep looking in case there are more than one cause associated with the altered mental status

Thinking Outside The Box

How many squares do you see?



Thinking Outside The Box

30 squares:

- 1 large 4 x 4 square
- 16 small 1 x 1 squares
- 4 – 3 x 3 squares in each corner
- 9 – 2 x 2 squares

Mnemonic - AEIOU-TIPS

- A – alcohol
- E – endocrine, electrolytes, encephalopathy
- I – insulin
- O – opiates
- U – uremia
- T – trauma – head injury, blood loss (shock)
- I – intracranial, infection
- P – poisoning; psychiatric
- S – shock; seizures; syncope

Mnemonic - SMASHED

- S – substrates, sepsis
 - Hyper/hypoglycemia, thiamine
- M- meningitis, mental illness (ie: psychosis)
- A – alcohol (intoxication/withdrawal)
- S – seizure, stimulants
- H- hyper/hypothyroidism, hyper/hypothermia, hypotension, hypoxia, hypercarbia
- E – electrolyte imbalance, encephalopathy
- D- drugs of any sort

A - Alcohol

- Includes beer, wine, and spirits
- Alcohol is a psychoactive drug with depressant effects
- Decreases attention and slows reaction speed
- Short term effects: intoxication, dehydration, alcohol poisoning
- Long term effects: changes to metabolism in the liver and brain; possible addiction
- Binge drinking
 - Men- 5 or more drinks in a row
 - Women – 4 or more drinks in a row

A- Alcohol

- Evaluate
 - Clarity of speech
 - Ability to comprehend the conversation
 - Gait
- Not all persons drinking alcohol have altered mental states
- Persons that drink often are at higher risk of all the other reasons to be altered as well, so it is easy to miss

E - Endocrine

- Endocrine system is an informational system much like the nervous system
- Chemical messengers, hormones, travel mainly via blood vessels to trigger responses
- Common conditions involving the endocrine system
 - Diabetes mellitus
 - Thyroid disease
 - Obesity

E - Electrolytes

- Electrically conductive medium
 - Principally: sodium, potassium, calcium, magnesium, chloride
- Activates muscles and neurons
- Homeostasis of electrolytes regulated by hormones
- Generally kidneys flush out excess levels of electrolytes
- Electrolyte disturbance (ie: dehydration or overhydration) may lead to cardiac and neurological complications (ie: medical emergencies)
 - Dehydration: exercise, diaphoresis, diarrhea, vomiting, intoxication, starvation

E- Encephalopathy

- A syndrome of brain dysfunction-can be functional or structural
- Causes
 - Brain infection, tumor, increased intracranial pressure, exposure to toxins, radiation, tumor, poor nutrition, hypoxia, decreased blood flow to the brain
- Hallmark – altered mental status
- Common signs and symptoms include loss of cognitive function and subtle personality changes

Hepatic Encephalopathy

- The liver's job is to process toxins.
- When the liver fails, it can no longer detoxify ammonia and it builds up in the bloodstream.
- Seen in patient's with liver disease, usually but not always with ascites

I - Insulin

- Diabetes mellitus
 - The brain is very dependant on a set glucose level to function
 - Rapid change in behavior and level of consciousness when the blood sugar level drops
 - Too high of blood sugar is also a problem
- All persons with altered level of consciousness need to have their blood sugar level checked

O - Opiates

- Used for pain relief but also for pleasure
- Depresses body functions and reactions
- Taken in pill form, smoked, injected
- High physical and psychological dependence
- Develop physical symptoms, behavioral symptoms, health effects, increased pain tolerance

Examples of Opiates

- Codeine – Lortab
- Darvocet – Methadone
- Demerol – Morphine
- Dilaudid – Percocet
- Fentanyl – Percodan
- Heroin – Oxycodone
- Hydrocodone – Oxycontin
- Lorcet – Ultram
- Vicodin

Signs and Symptoms - Opiates

- Constricted pupils
- Sweating
- Nausea/vomiting/diarrhea
- Needle marks
- Euphoria
- Slurred speech
- Slowed reflexes
- Drowsiness/ Stupor
- Depressed breathing
- Depressed pulse rate
- Obtundation
- Fatigue
- Mood swings
- Depression
- Apathy
- Loss of appetite

U - Uremia

- Urea and waste products not eliminated from the blood
- Accompanies kidney failure/renal failure
- Usually diagnosed when kidney function < 50% of normal
- Early symptoms: anorexia and lethargy
- Late symptoms: decreased mental acuity and coma

T - Trauma

- A-Airway Hypoxia
 - B-Breathing Hypoxia
 - C-Circulation Blood loss and shock
 - D-Disability Head trauma
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- Initial assessment- “Hi, I am Dr Paris, what is your name? Can you tell me what happened?”

I - Intracranial

- Tumor/Abscess/Blood
 - Symptoms/neurological deficits often point to the area of brain affected
 - Right sided brain insult affects left sided body function
 - Left sided brain insult affects right sided body function

Intracranial cont'd

- Pupillary changes reflect same side of brain insult
 - Right pupillary change reflects right sided brain insult
 - Left pupillary change reflects left sided brain insult
- Consider acute vs chronic condition
 - Chronic conditions:
 - Elderly with frequent falls
 - Chronic alcoholism with frequent falls

I - Infection

- Meningitis
 - Bacterial is highly contagious
 - Mask the patient and all medical personnel caring for patient
- Encephalitis
- Urinary tract Infection (UTI)
 - Elderly often do not present with high fevers
- Pneumonia – viral and bacterial
- Liver abscess
- Skin infections
- Sepsis

P - Poisoning

- Drug overdose
 - Intentional
 - Mixing any meds with alcohol increases the risk of worsening conditions
 - Accidental
 - Think scene safety
 - Think of their prescription medications
- EMS to bring in all containers

P - Psychiatric

- Schizophrenia
 - Common mental health problem
 - Hallmark – significant change in behavior and loss of contact with reality
 - Hallucinations, delusions, depression
- Bipolar
 - One or more manic episodes with or without subsequent or alternating periods of depression
 - Either direction can lead to acute psychosis

S - Seizure

- Epilepsy
- Hypoglycemia
- Poisoning/withdrawal
- Infection
- Head Trauma
- Intracranial process
- Electrolyte abnormalities
- Hypertensive disorder of pregnancy

S- Syncope

- “Fainting”-brief loss of consciousness with spontaneous recovery
- Typically a very short episode resolved when the patient lies flat (or becomes flat)
- Often warning signs &/or symptoms
 - Lightheadedness
 - Dizziness
 - Nausea
 - Weakness
 - Vision changes
 - Sudden pallor
 - Sweating

Causes of Syncope

- Vasovagal Syncope
- Hypovolemia – fluid &/or blood loss
- Metabolic-hypoglycemia, electrolyte
- Toxicological – excessive alcohol
- Environmental
 - Carbon monoxide
 - Heat stroke
- Cardiovascular - dysrhythmias

Shock

- Shock is poor perfusion to the tissues.
- Blood loss, massive MI, Pulmonary Emboli, Sepsis
- Ways to measure for shock:
 - Altered mental status
 - Cold and clammy, skin changes
 - Decreased urine output
 - SvO₂ and cardiac output

Elderly Considerations

- Contributing factors to confusion
 - Stress
 - Fear of removal from their home
 - Talking with strangers (ie: EMS, hospital staff)
 - Language barriers, including hard of hearing
 - Answering questions they do not know the answers to

Elderly Considerations

- Altered mental status possibly due to:
 - Medical insult or traumatic head injury
 - Heart rhythm disturbance; AMI
 - Dementia
 - Infection
 - Related to prescription medications
 - Decreased blood volume – shock
 - Respiratory disorders and/or hypoxia
 - Hypo/hyperthermia
 - Decreased blood sugar level

Distinguishing Dementia From Delirium

- Dementia

- Chronic, slow progression
- Irreversible disorder
- Impaired memory
- Global cognitive deficits
- Most commonly caused by Alzheimer's
- Does not require immediate treatment

- Delirium

- Rapid in onset (hours to days), fluctuating course
- May be reversed esp if treated early
- Greatly impairs attention
- Focal cognitive deficits
- Most commonly caused by systemic disease, drug toxicity, or metabolic changes
- Requires immediate treatment

Dementia

- Causes of this progressive disorientation
 - Small strokes
 - Atherosclerosis
 - Age related neurological changes
 - Disease related neurological changes
 - Certain hereditary diseases (ie: Huntington's)
 - Alzheimer's disease

Delirium

- Disorganized thinking with reduced ability to maintain attention and to shift attention
- Synonyms:
 - ✓ Acute confusional state
 - ✓ Acute cognitive impairment
 - ✓ Acute encephalopathy
 - ✓ Acute altered mental status

Assessment

- Scene Safety
- Initial Assessment (Sick/Not Sick)
- Focused Exam
- Detailed Exam
- Assessment
- Treatment and Plan

Patient Assessment

- ABC's
 - Airway intact, can the patient protect their own airway?
 - Is ventilation/breathing adequate?
 - Does supplemental oxygen need to be given?
 - Room air contains 21 % O₂
 - Nasal cannula delivers 24% - 44% O₂ (2 – 6 L/min)
 - Non-rebreather can deliver up to 100% O₂ (12-15 L/min)
 - Does the C-spine need to be controlled?

Patient Assessment

- Adequacy of circulation
 - What is the blood pressure?
 - Does the blood pressure equate with the patient assessment?
 - Is there a peripheral pulse? Rate? Quality?
- Do you need to gain IV access?
 - Is IV access necessary?
 - Is IV access needed as a precaution?

Patient Assessment

- Cardiac monitor
 - Is there a dysrhythmia present?
- What is the blood sugar level?
- Does the patient require isolation for potential infectious disease?
- History
 - From the patient, caregiver, bystander
- History of present illness
- Pertinent past medical history

Patient Assessment

- Allergies
- Current medications
- Use of drugs or other substances
- Physical exam
 - Vital signs – B/P – P – R – SpO₂
 - Hands-on assessment head to toe
 - Skin exam
 - Rashes? Evidence of infection?

Patient Assessment - Neurological

- Evaluate appearance, behavior, attitude
- Sensorium and intelligence – normal level of consciousness? Impaired cognition/intellectual functioning? Oriented to person, place and time.
- Insight and judgment – can patient understand circumstances and identify surroundings?
- Thought disorders – logical and realistic?
 - False beliefs/delusions?
 - Suicidal/homicidal thoughts?
 - Perception disorders?
 - Hallucinations present?
- Mood and affect

Neurological Assessment cont'd

- Level of consciousness
 - AVPU
- Pupillary response
- Glasgow coma scale
 - Scores 3 – 15
 - More important than any one score is the trend the score is making

Glasgow Coma Scale

- Evaluates wakefulness and awareness
- Wakefulness
 - The state of being aware of the environment
- Awareness
 - A demonstrated understanding of what is being said

GCS Tips

- Always give the patient the best score possible
 - If the patient can move the right extremity and not the left, score for the movement of the right extremity
 - Deteriorations will be noted faster as the score drops by awarding the highest points possible
- Pediatric component
 - Used for the young patient who is not yet verbal due to age

Glasgow Coma Scale

<u>EYE</u> <u>OPENING</u>	<u>VERBAL</u> <u>RESPONSE</u>	<u>MOTOR RESPONSE</u>
4--Spontaneous	5--Oriented	6--Obeys
3—Verbal stimuli	4--Confused/ disoriented	5—Localizes/purposeful
2--Pain	3--Inappropriate words	4--Withdraws
1--None	2--Incomprehensible sounds	3--Abnormal flexion
	1--None	2--Extensor posturing
		1--None

GCS Score

- GCS 13 – 15
 - Mild brain injury
- GCS 9 – 12
 - Moderate brain injury
- GCS ≤8
 - Severe brain injury
 - Most patients with this score are in coma
 - Evaluate for the need to assist in protecting the patient's airway

Evaluating Eye Opening

- Best response is obtained, if at all possible, before physical contact is made with patient
 - This is not always possible when the C-spine needs to be controlled as c-spine control occurs immediately before other interaction with patient
- Patient gets credit if eyelids open even for a brief moment or just flicker
- Always consider need to control the C-spine over the verbal response of the GCS

Evaluating Verbal Response

- 5 – uses appropriate words/conversation
- 4 – speaks but is confused and disoriented
- 3 – speaking and you can understand the words spoken but the words do not contribute to the current conversation
- 2 – making sounds like grunts and moans; no intelligible words
- 1 – no response; no speech; no noise

Modifying GCS for Pediatrics

- Adult GCS must be modified to match the developmental age of the young nonverbal child
- Best eye opening remains unchanged
- Best verbal response for non-verbal patient
 - 5 – Smiles, coos, follows objects
 - 4 – Irritable cry but is consolable
 - 3 – Inappropriate crying; cries to pain
 - 2 – Inconsolable, agitated; moans or groans to pain
 - 1 – No response

Evaluating Motor Response

- 6 – Obeys commands
- 5 – Localizes/Purposeful movement
 - Hits at you, grabs at your hands, pulling equipment off, pushing you away
- 4 – Withdraws from pain (unable to localize)
- 3 – Flexing with internal rotation and adduction of shoulders and flexion of elbows
- 2 – Extension with elbows straightened and possible internal shoulder and wrist rotation

Pediatric GCS Motor Response

- Best motor response for non-verbal patient
 - 6 – obeys commands
 - May be difficult to determine if child understands
 - 5 – localizes pain by withdrawing to touch stimuli
 - 4 – withdraws to pain (more stimuli than touch)
 - 3 – same – abnormal flexion
 - 2 – same – abnormal extension
 - 1 – no motor response; patient flaccid

GCS Practice (answers at end)

Score the Following Patients:

- Patient #1
 - The patient is watching you approach
 - The patient speaks normally and answers questions
 - The patient raises their arm when you ask to take their B/P
- Patient #2
 - The patient is looking around the environment
 - The patient speaks normally but is confused
 - When you ask the patient to raise their arm, they are slow to do so but eventually raises their arm

GCS Practice

- Patient #3
 - The patient's eyes are closed and there is no movement even after squeezing the trapezius
 - The patient groans when the trapezius is squeezed
 - The patient flexes their arms to the chest wall
- Patient #4
 - Patient eyes open briefly when their name is called
 - Patient groans while being pinched
 - Patient does not follow commands and pushes you away whenever you try to treat the patient

GCS Practice

- Patient #5
 - Eyes are closed but open when calling the patient
 - The patient yells “don’t” and “stop it” when being touched, assessed, and treated but is not speaking
 - Patient pushes your hands away and is trying to pull off the cervical collar and IV
- Patient #6
 - Eyes open briefly when asked to open them
 - The patient moans weakly when being touched
 - The patient tries to pull away when care is being provided (ie: IV start)

GCS Practice

- Patient #7
 - Patient refused to open eyes due to pain and squeezes them tighter when asked to open eyes
 - The patient responds verbally saying their head hurts and the lights make it hurt worse
 - Patient follows commands except for opening eyes
- Patient #8
 - Eyes are open looking straight ahead
 - When asked what month it is, the patient responds “he, umm, he, my jacket, don’t...”
 - Does not follow commands. Pulls one hand away and the other hand is pushing you away

GCS Practice – Pediatrics < 1y/o

- Patient #9 (6 month old)
 - Infant's eyes flutter when touched
 - Patient cries when gently touched; is consolable
 - Patient withdraws when first touching them
- Patient #10 (9 month old)
 - Eyelids flutter when the IO needle is placed
 - Patient moans during the IO insertion and when deformed extremity is handled
 - The patient pulls their arms tightly into their chest wall curling shoulders and wrists inward

GCS Answers

- Patient # 1 - 4, 5, 6 = 15
- Patient # 2 - 4, 4, 6 = 14
- Patient # 3 - 1, 2, 3 = 6
- Patient # 4 - 3, 2, 5 = 10
- Patient # 5 - 3, 3, 5 = 11
- Patient # 6 - 3, 2, 4 = 9
- Patient # 7 - 3, 5, 6 = 14
- Patient # 8 - 4, 3, 5 = 12
- Patient # 9 - 2, 4, 5 = 11
- Patient # 10 - 2, 2, 3 = 7

Blood Glucose Level

- To be obtained in the field when:
 - ✓ Patient is known diabetic with diabetic related problem
 - ✓ Patient has an altered level of consciousness for unknown reasons
 - ✓ Patient is unresponsive (includes post-ictal patients)
- Be aware: Peds patients can drop their blood sugar level fast

- Consider the patient to have more than one problem at a time
 - Make sure a 2nd or 3rd issue is not present once you find the first issue (ie: hypoglycemia)

Blood Glucose Monitor

- Machines calibrated for capillary specimen
- Keep the site hanging dependently
 - Can use side of finger tips or the forearm
- Once the site is wiped with an alcohol prep pad, let the site air dry before obtaining a sample
- Use a lancet to obtain a blood sample from the finger or forearm
- Patient should not sign a release until EMS can document a blood sugar level >60 in the field

Stroke Care

- Rapid detection of signs and symptoms with rapid diagnosis is essential
- Need to avoid delays
 - 3 hour time limit to administer a fibrinolytic from time of first onset of signs and symptoms
 - Increase risk of cerebral bleeding beyond a 3 hour time frame
- **Most important question to ask:**
 - **What time did symptoms begin?**

Cincinnati Stroke Scale

- Quick and simple evaluation tool
- Documentation
 - Facial droop
 - Right/left facial droop or no droop
 - Arm drift
 - Right/left arm drift or no drift
 - Speech
 - Clear or not clear

Facial Drooping



- Ask the patient to smile real big and show you their teeth
 - Best way to see if a droop is present

Arm Drift



- Demonstrate first and then have patient hold their hands out in front, palms up, for 10 seconds

Clarity of Speech

- Most likely you'll know by now if there is a speech problem
- Can have the patient repeat after you any words or a sentence you give them
 - “You can't teach an old dog new tricks”

7 D'S Of Stroke Care

- Detection – of signs and symptoms
- Dispatch – patient to call 911
- Delivery – by EMS to the appropriate facility
- Door – emergent triage in the ED
- Data – appropriate tests
- Decision – to administer a fibrinolytic or not after diagnostic tests and assessment completed
- Drug – must administer the fibrinolytic within 3 hours of onset of symptoms

Combative Patient

- Talking down a patient is an art that requires effort and skill
- Need enhanced people skills of listening and observation
- Make sure the scene is safe
- Provide a calm and supportive environment
- Treat any existing medical conditions
- Do not confront or argue with the patient
- Provide realistic reassurance
- Respond to the patient in a direct, simple manner

2 Extremes of Behavioral Emergencies

- Combative patient
 - ✓ Fidgeting, nervous energy
 - ✓ Voice getting louder
 - ✓ Pacing
 - ✓ Shouting, apparent anger
- Withdrawn patient
 - ✓ Facing away from care provider
 - ✓ Decreasing eye contact
 - ✓ No eye contact or conversation
 - ✓ Totally withdrawn

System Operating Guidelines – Use of Restraints

- EMS personnel should contact Medical Control if possible before restraining patient
 - May restrain patient first for patient and personnel safety
- All attempts must be made to avoid injury to patient and EMS personnel
- Do not compromise the patient's ability to breathe or further aggravate any injury or illness
- EMS to clearly document the behavior leading to use of restraints
- Handcuffs applied by police only
 - Officer must accompany patient in the ambulance during transport if handcuffs are in place

Methods of Restraint

- Verbal de-escalation
 - First method to employ
 - Avoids physical contact with the patient – safer
 - Watch “personal space”
 - 1.5 – 4 feet in the United States
 - Keep open an “escape route” for yourself

Methods of Restraint cont'd

- Physical restraint
 - Materials or techniques that will restrict the movement of a patient
 - Soft restraints: sheets, wristlets, chest Posy
 - Hard restraints: plastic ties, handcuffs, leathers
 - Police must be in ambulance for transport if patient is in handcuffs
 - Patients need frequent reassessment to evaluate for injury or possible neurovascular compromise or airway compromise
 - Use a surgical mask placed loosely over the face to control spitting

Physical Restraints

- EMS to not transport a restrained patient prone
 - Positional asphyxia may cause death
- Be prepared to protect the patient's airway
- Do not secure straps to moving side rails
- Restraining thighs just above knees often prevents kicking
- Struggling against restraints may lead to severe acidosis and fatal dysrhythmias
- NEVER leave restrained patient unattended

Methods of Restraints cont'd

- Agitation Reduction Therapy (Chemical restraint)
 - Administration of specific pharmacological agents
 - Decrease agitation
 - Increase cooperation
 - Not alter a patient's level of consciousness
 - Common agents used:
 - Lorazepam (Ativan)
 - Droperidol
 - Ketamine

Region X SOP - Severe Anxiety or Agitation

- Valium 5 mg IVP slowly over 2 minutes
 - Repeat as needed
 - Maximum total dose is 10 mg
 - In the absence of an IV, Valium 10 mg IM/rectally
 - Watch for respiratory depression with administration of a benzodiazepine
 - Have a BVM ready to use as a precaution

Documentation Tips

- All patients require a blood glucose level for altered mental status
- Documentation should reflect serial monitoring of the patient's condition looking for changes
 - GCS
 - AVPU
- If restraints are used, document objectively and in detail the behavior that led to the need for restraints
 - Document distal circulation of any restrained extremity
- Patients with altered mental status cannot sign a release in the field

What should you not miss in the field? Why?

- These are the problems that you should be treating or addressing in the field.
- Treating includes rapid transfer for things that are time dependent and you can't fix

What should you not miss in the field? Why?

- Hypoxia
- Hypoglycemia/hyperglycemia
- Opiate Overdose
- Hypothermia
- Shock
- Trauma
- Any overdose

Case Studies

- Read the following case studies
 - Can be a patient found by EMS
 - Can be a walk-in Ed patient
- How would you respond?

Case Study #1

- 57 year old patient found behind a garage unresponsive.
- Breathing and has a radial pulse. Dry blood on lips.
- What are your impressions?
- How does your assessment proceed?

Case Study #1

- Impression list
 - Post-ictal from seizure
 - Hypoglycemia
 - Alcohol intoxication
 - Drug overdose
 - Acute MI
 - Stroke
 - Head trauma

Case Study #1

- Assessment
 - Control c-spine while palpating neck area
 - Evaluate if respiratory assistance is needed
 - Check quality, depth, rate of respirations, SpO₂
 - Calculate GCS; obtain vital signs
 - Consider IV-O₂-monitor
 - Assess for need for fluid challenge
 - Assess cardiac rhythm; consider obtaining a 12 lead EKG
 - Obtain a blood glucose sample

Case Study #2

- Patient brought to ED by spouse
- Patient dropping silverware at lunch, unable to sit up straight, unable to complete sentences
- Vital signs: 170/110; P – 64; R – 16; GCS -14



Case Study #2

- What is your impression?
- What is the cardiac rhythm?
 - Atrial fibrillation
 - How does this rhythm relate to any impressions?
- What assessments need to be done?
 - Blood sugar level for all patients with altered level of consciousness
 - Cincinnati stroke scale

Case Study #2

- Cincinnati stroke scale
 - Ask the patient to smile real big showing you their teeth
 - Ask the patient to put their hands out in front, palms up, and close their eyes
 - Hold the position for 10 seconds
 - Ask the patient to repeat a saying
 - “You can’t teach an old dog new tricks”

Case Study #2

- What's the most important question to ask the patient?
 - When did the symptoms begin?

Case Study #3

- An 18 year-old patient is found under the bleachers at school unresponsive with shallow respirations.
- AVPU - responds to painful stimuli
- Vital signs: 110/70; P – 110; R – 4; pupils constricted
- GCS – 8
- What are your impressions?

Case Study #3

- Impression list
 - Drug overdose
 - Opiates – constricted pupils, depressed respirations
 - Head injury
 - Hypoglycemia
 - Post-ictal

Case Study #3

- Treatment
 - Control c-spine
 - Consider c-spine injury until proven otherwise
 - Secure airway
 - Frequency to ventilate via BVM to support respirations?
 - Once every 5 – 6 seconds
 - Gain IV access
 - Peripheral site?
 - IO if peripheral unobtainable
 - Evaluate cardiac rhythm

Case Study #3

- Medications to administer in the field
- If blood sugar < 60 give 50 ml of 50% Dextrose
 - As a diagnostic tool give Narcan
 - 2 mg IVP every 5 minutes as needed for desired effect
 - Maximum total of 10 mg
- Consider need to protect the airway with intubation following conscious sedation

Case Study #4

- EMS is called to the scene for an unknown medical emergency
- Police have secured the scene
- The patient is a 54 year-old male who is combative
- What are your impressions?
- What actions are indicated?

Case Study #4

- Impressions
 - Psychiatric problem
 - Altered blood sugar
 - Head injury
 - Electrolyte imbalance

Case Study #4

- Action to take
 - Make sure the scene is safe and remains safe for the rescuers and the patient
 - Will need a blood sugar at some point
 - A cardiac monitor to evaluate rhythm could be important assessment information
 - May need to restrain the patient for staff safety and patient safety

Case Study #4

- Methods to restrain patients
 - Verbal de-escalation
 - Soft restraints
 - Wrist and ankle restraints
 - Chest posey or sheet
 - Hard restraints with EMS in the field
 - If police handcuff the patient, police must ride with the patient in the ambulance
 - Police are not allowed to hand off cuff keys to EMS

Case Study #4

- Documentation
 - Patient's behavior in descriptive, objective terms that indicated the need for restraint
 - If no time to contact Medical Control before restraining patient, EMS to contact Medical Control after the patient is restrained
 - Document distal circulation, motion, and sensation periodically after restraining the patient

Case Study #5

- 32 year-old patient was found combative at work. This is very unusual behavior for this patient
- Vital signs: 110/70; P – 80; R – 18; skin damp
- Impression?
- Further assessment?
- Treatment?

Case Study #5

- Impression
 - Hypoglycemia
 - Head injury
 - Drug / alcohol influence
- Assessment
 - Blood sugar level
 - Cardiac monitor
 - Neurological evaluation

Case Study #5

- Blood sugar was 25
 - Treatment indicated
 - 50 ml 50% Dextrose IVP
- Patient now alert and oriented
- Repeat blood sugar 56
- Patient wants to sign a release. Can EMS allow a release to be obtained?
 - No release until the blood sugar is >60
 - EMS to stay on the scene and continue to reassess as the patient takes in food or liquids

Remember

- ...it is okay if you do not diagnose the patients problem.
- It is not okay if you fail to take care of what you are trained to take care of.

Questions?

Thank you,
Patti A Paris, MD
Alaska Native Medical Center