Agitation in brain injury

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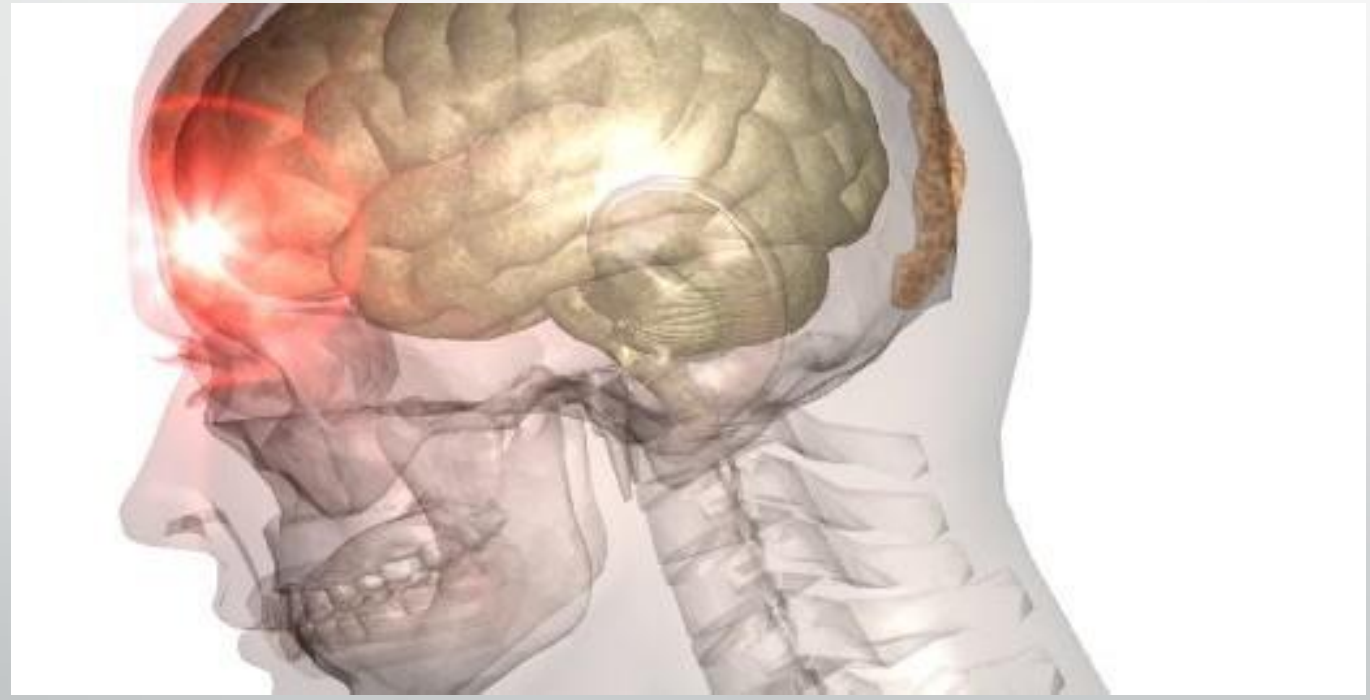
Objectives

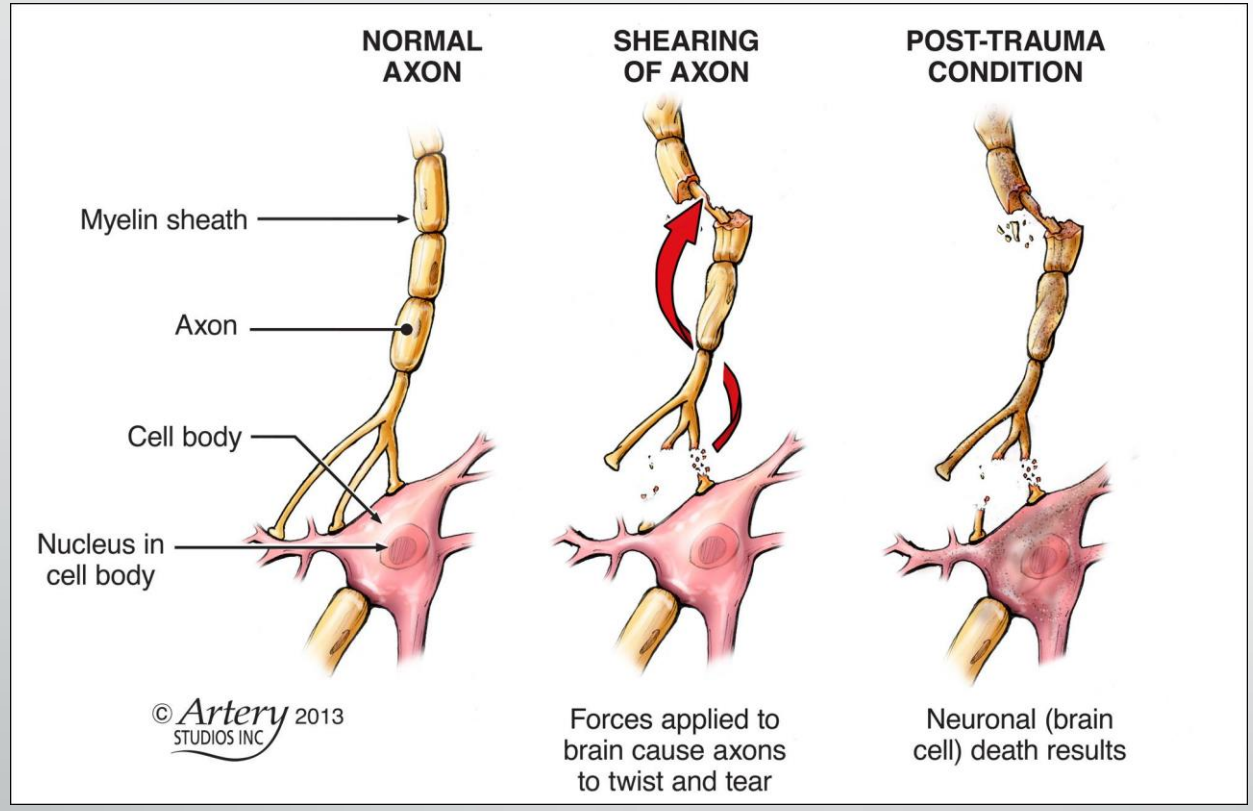
- To identify the manifestations of agitation in a patient with a brain injury
- To describe the management of agitation in a patient with a brain injury from the Intensive Care Unit to home care phase

Traumatic Brain Injury (TBI)

Coupe/contra-coupe injuries



Traumatic Brain Injury (TBI)



Diffuse Axonal Injury (DAI)

Traumatic Brain Injury (TBI)

Temporal Lobe Damage common

Non-Traumatic Brain Injury (NTBI)

- Brain tumor
- Subarachnoid hemorrhage
- Encephalitis/meningitis
- Hydrocephalus
- Encephalopathy

Encephalopathy

- Definition: brain disease, damage, or malfunction
  - May be permanent or reversible
  - Due to direct injury to the brain or illness remote from the brain
  - Symptoms: cognitive deficits, irritability, agitation, delirium, confusion, somnolence, stupor or coma

Encephalopathy Causes:

- Hypoxic
- Hepatic
- Uremic
- Chronic traumatic
- Lyme
- Toxic
- Toxic-metabolic
- Salmonella

Effects of Brain Injury

Physical

Cognitive

Behavioral

Rancho Los Amigos Scale

Level 1-No response

Level 2 - Generalized response

Level 3 - Localized response

Level 4 - Confused-agitated

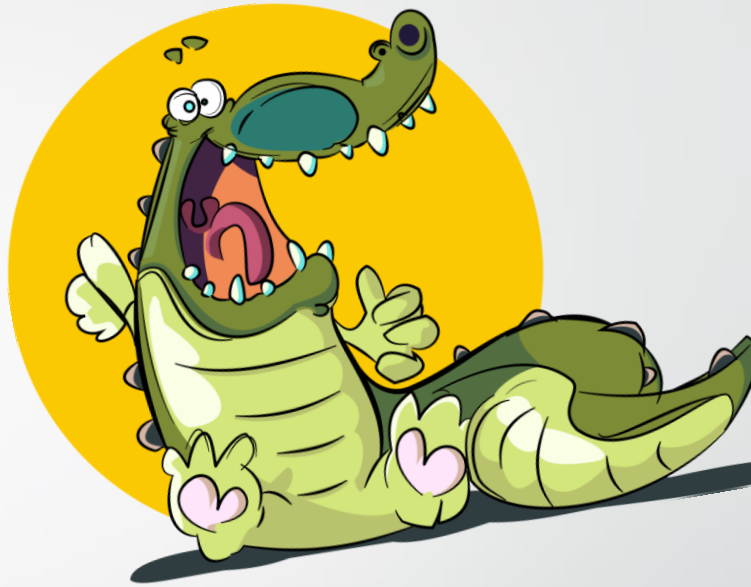
Level 5 - Confused-inappropriate

Level 6 - Confused-appropriate

Level 7 - Automatic appropriate

Level 8 – Purposeful-appropriate

Rancho Level 4



- Alert and in heightened state of activity
- Confusion
- Aggressive behavior
- Unable to do self-care (max assist)
- Unaware of present events
- Agitation appears related to internal confusion
- Cries out or screams out of proportion to stimuli
- No short-term memory
- Purposeful removal of restraints

Therapeutic interventions

- **Prevention of agitation**
  - Assessment of patient's typical lifestyle
  - Environmental Controls
  - ADLs
  - Bowel and Bladder Programs
  - Medications

Agitation--Prevention

- Assessment of baseline personality and lifestyle
  - Likes/dislikes
  - Activity level—usual routines
  - Life roles
  - Coping skills

Agitation --Prevent

- **Control the environment**
  - Minimize stimulation
    - **Private room**
    - **Dim lights—no overhead lights—may pull curtains**
    - **Minimize noise – no TV**
    - **Cluster care**

Control the environment

- Consistent caregivers
- Consistent schedule
- Alternate activity with rest periods
- Pain Management
- Cluster care

Control the environment

- **Remove Triggers**
  - Alarms
  - Telephone
  - Coat, boots
  - Pictures
  - Scheduled pain med (Tylenol)
  - Change caregivers

Enclosure Bed

Agitation--Prevention

- **ADL's**
  - Plan simple tasks
  - Ask family to bring in clothing that is easy to put on/take off
  - Go at patient's pace—don't rush
  - Give simple directions
  - Simple choices or suggestions—not "yes/no"
  - Be sure to tell the patient before you touch them or change tasks

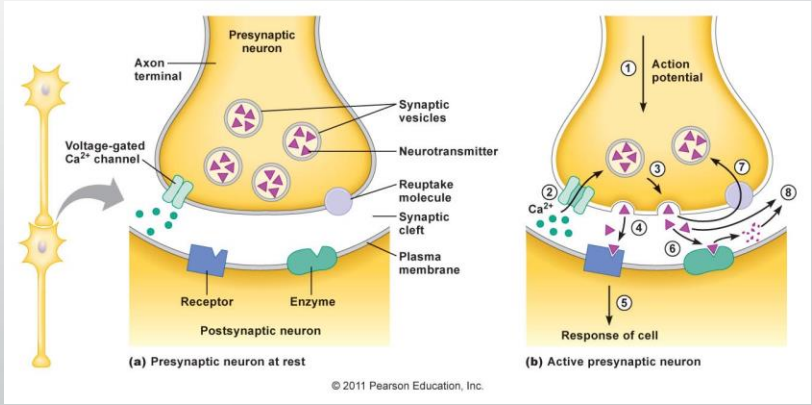
Agitation--Prevention

- **Bowel and Bladder Programs**
  - Full bladder or bowel can cause agitation
    - Timed voiding program
    - Take to bathroom at time of usual bowel movement

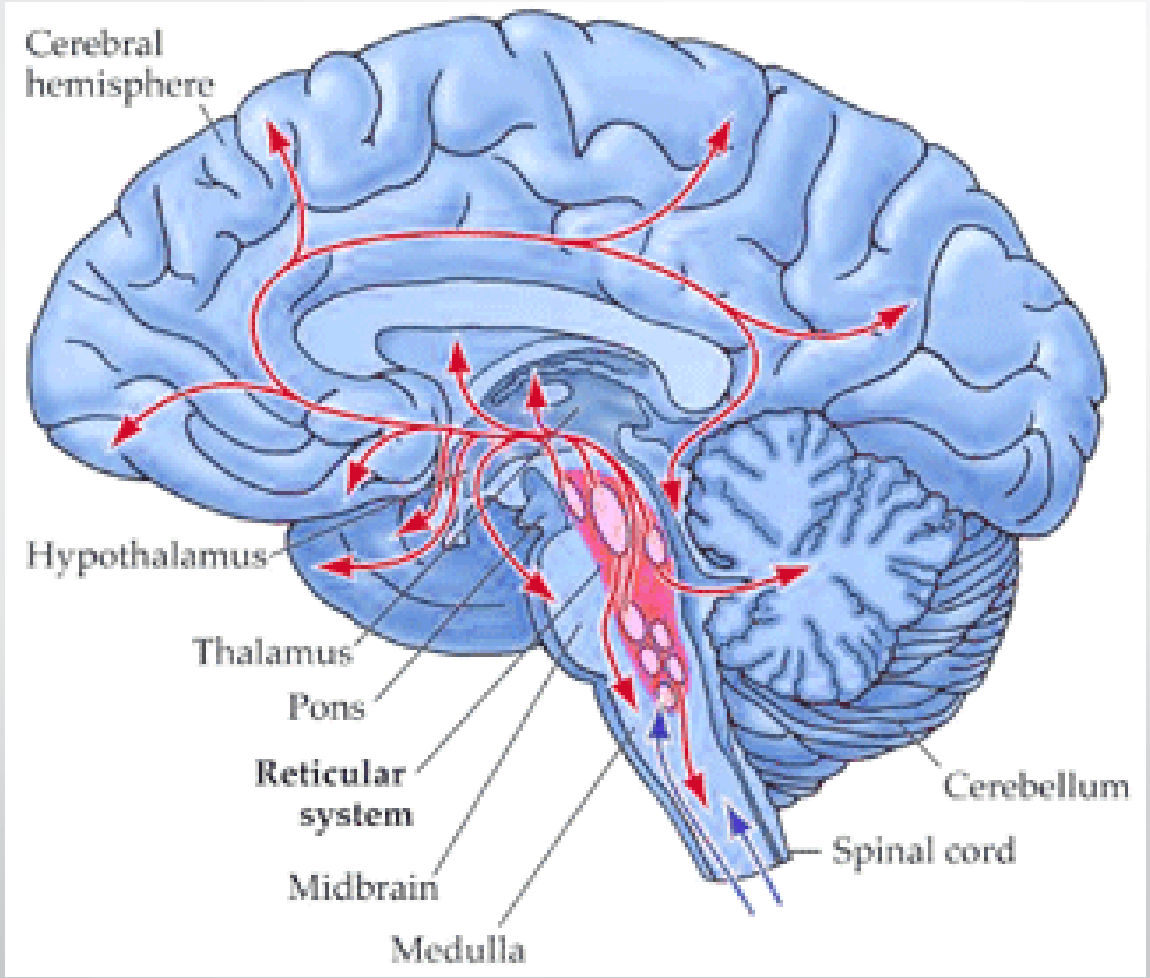
Agitation Prevention

Neurotransmitters

- Reticular activating system regulates learning, memory, arousal and sleep-wake cycles.
- Norepinephrine and dopamine are the chief neurotransmitters involved in these activities
- Acetylcholine
- Serotonin
- GABA
- Significantly altered after a brain injury



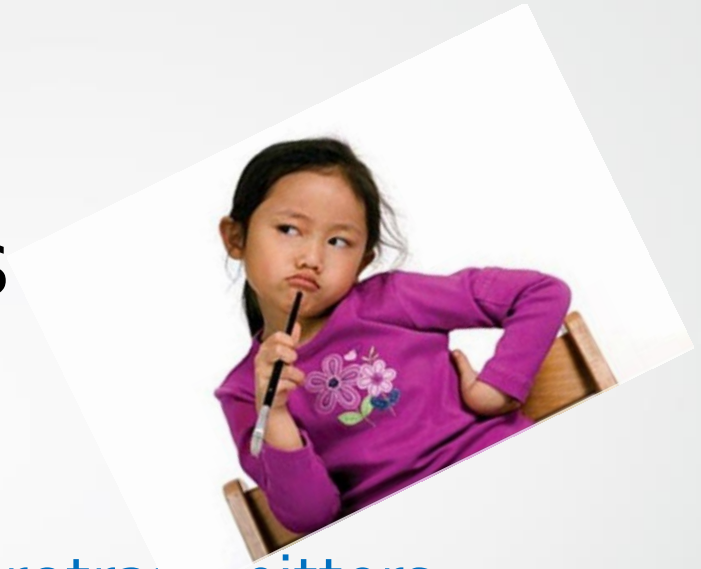
Reticular Activating system



Medications

- **Medications that may inhibit neurotransmitters and impair cognition:**
  - Anticonvulsants
  - Antiemetics
  - Antipsychotics—Haldol
  - Hypnotics
  - Benzodiazepines (Valium, Thorazine)
  - Barbituates and opiates
  - H2 blockers

Medications



- **Goals of medication therapy:**
  - Improve cognition
  - Increase the availability of the brain neurotransmitters
  - Improve decision making skills
  - Improve ability to sleep
  - Decrease agitation

Medications to control agitation

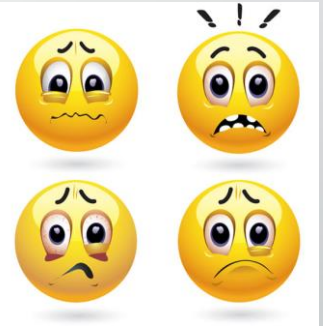
- **Antidepressants**
  - SSRI's preferred
  - Makes more serotonin available to the brain cells
  - Also help with depression, anxiety, apathy and disinhibition
  - Risks: Cardiac arrhythmias, constipation, diarrhea, increased appetite, delirium
  - Zoloft, Desyrel, Celexa

Medications to control agitation

- **Antipsychotics**
  - Block dopamine
  - Risks: drowsiness, extrapyramidal, orthostatic hypotension, agitation
  - Zyprexa, Seroquel, Risperdal

Medications to control agitation

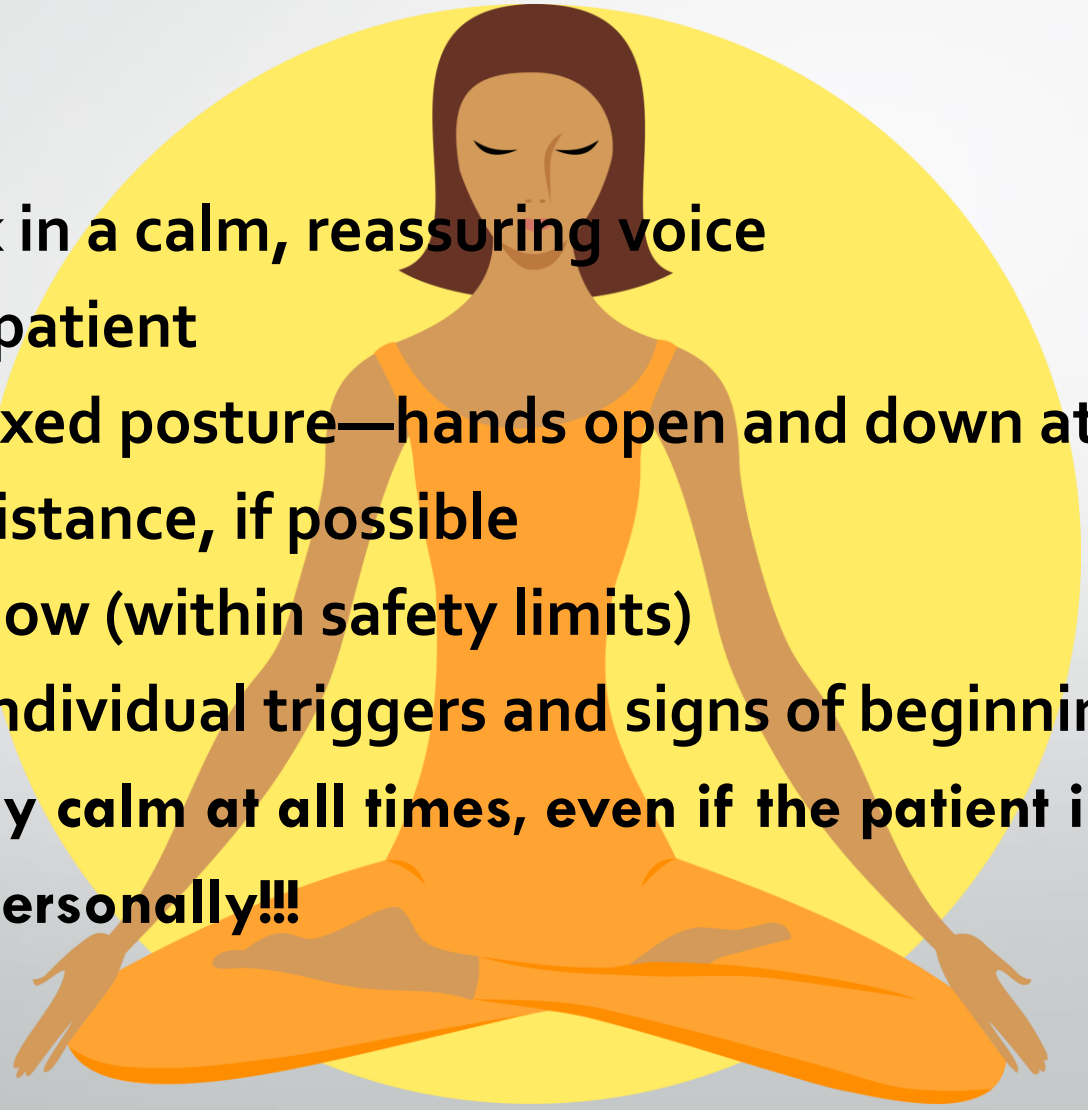
- **Benzodiazepines**
  - Enhance GABA receptors
  - Helps with anxiety, insomnia, muscle spasms and seizures
  - Medium acting: Ativan, Restoril
  - Long acting: Klonopin, valium
  - Risks: sedation, cognitive slowing, increased agitation



Medications to control agitation

- **Psychostimulants**
  - Increases dopamine and norepinephrine available to the cells
  - Helps with attention and concentration, apathy, problem solving and planning
  - Risks: decreased appetite, nausea, insomnia, abdominal pain
  - Ritalin
  - AntiParkinson's: Amantadine (Symmetrel)--helps with concentration, fatigue, distractibility and decreases agitation
  - Risks: nervousness, anxiety, insomnia, agitation, extrapyrimidal

Agitation Prevention—General Guidelines



- Always speak in a calm, reassuring voice
- Reorient the patient
- Display a relaxed posture—hands open and down at your side
- Keep a safe distance, if possible
- Go with the flow (within safety limits)
- Be aware of individual triggers and signs of beginning agitation
- Stay outwardly calm at all times, even if the patient is becoming agitated
- Don't take it personally!!!

Therapeutic interventions

- **Therapy**
  - Structure, consistency, repetition
  - Therapy appropriate for functional status
  - Short therapy sessions
  - Attention to patient
  - Family involvement

Treatment of agitation

- Remove source of trigger **immediately**
- **Stop** talking
- **Stop** the activity
- **STAY** (outwardly) **CALM**
- Back away from the patient—if possible—make sure he is safe
- Calmly re-assure the patient
- Reorient the patient
- Redirect

Treatment of Agitation

- Medications—next to last resort
- Code Green—last resort
- Restraints—last resort

Treatment of Agitation

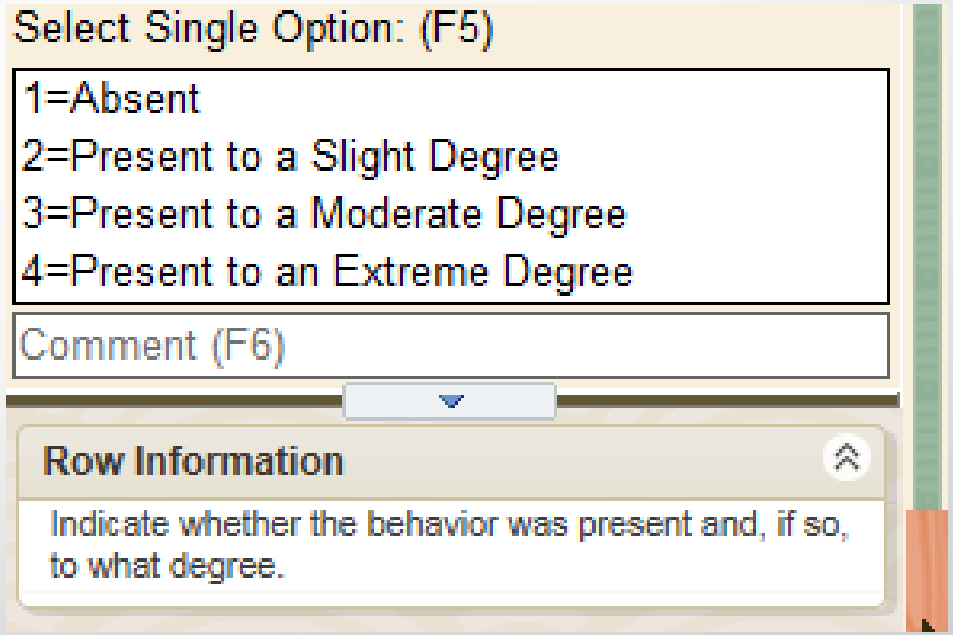
- Investigate other causes—delirium:
  - Infection
  - Electrolyte imbalance
  - Medications
  - Alcohol withdrawal

Therapeutic interventions

- Progression as patient gets better
- Increase complexity of requests
- Give more choices
- Give more difficult tasks
- Alter the environment—go to therapy gym or for a walk outside
- Use agitated behavior scale to monitor patient responses

Agitated Behavior scale

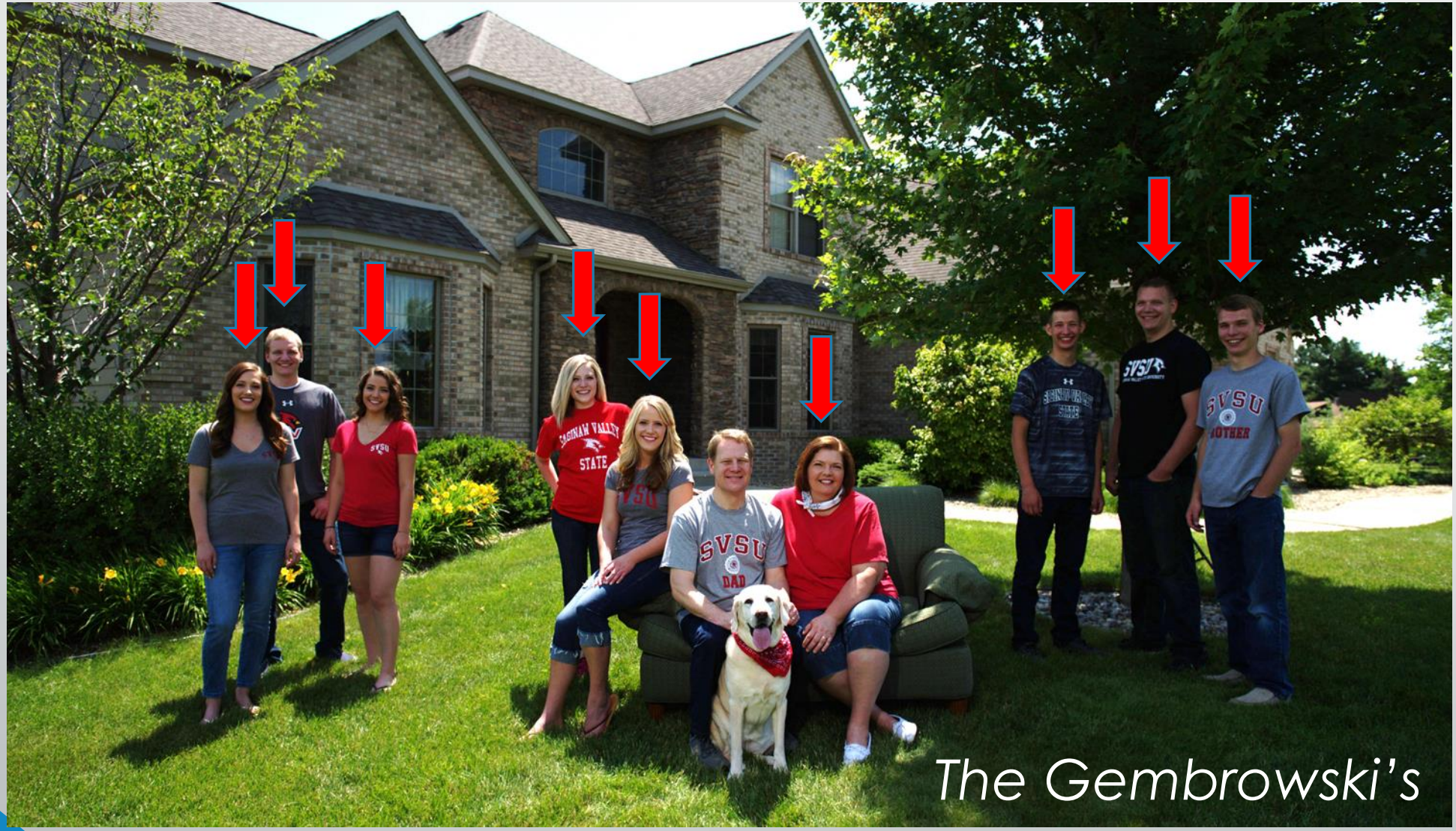
AGITATED BEHAVIOR SCALE	
Short attention span, easy distractibility,	
Impulsive, impatient, low tolerance for pain	
Uncooperative, resistant to care,	
Violent and or threatening violence toward	
Explosive and/or unpredicatable anger	
Rocking, rubbing, moaning, or other self	
Pulling at tubes, restraints, etc.	
Wandering from treatment areas	
Restlessness, pacing, excessive	
Repetitive behaviors, motor and/or verbal	
Rapid, loud or excessive talking	
Sudden change of mood	
Easily initiated or excessive crying and/or	
Self-abusiveness, physical and/or verbal	
AGITATED BEHAVIOR TOTAL SCORE:	



Case scenario

Martin Gembrowski

Covenant Patient



The Gembrowski's

Who Was Marty Gembrowski?

- Born on December 28, 1962 in Saginaw, Michigan (53 years old).
- Parishioner of St. John Paul II Parish in Carrollton.
- Many hobbies included cooking, reading, gardening, and traveling.
- 28 years of service at Dow Chemical; leader, mentor, and friend to
- Husband to Sharon for 30 years, father of 8.
- Attended St. Mary Cathedral High School in Saginaw and received his Bachelor's and Master's Degrees from Aquinas College in Grand Rapids.
- Community Service: Great Lakes Bay Regional Youth Leadership Institute, committee member for the United Way of Saginaw County

Diagnosis: glioblastoma

- Brief history of falls, headaches, and emerging fine motor coordination impairment
- Biopsy necessary to solidly diagnosis
- Glioblastoma Multiforme, Grade IV
- Inoperable

Intensive care unit

Initial patient presentation: intubated, sedated, ventricular drain, multiple lines, monitors, flaccid left side, rhythmic thrashing movements of right side, head movements, sensitivity to interaction and environment

- Environment: lights on, window shades open, TV in conjoining room loud, people in conjoining room loud, bed not prepped appropriately
- Patient comfort: thrashing, rhythmic movements of right side; side to side head turns, bowel and bladder management

Intensive care unit

Patient presentation: extubated, restrained, ventricular drain, agitated, attempts to get out of bed, confused, no short term memory

- Mobility
- Bowel and bladder management
- Hunger/thirst
- Periods of extreme agitation
- Medication management
- Staff/patient interaction
- Family involvement

Intensive care unit

Patient Presentation: restrained consistently, agitated, confused, no short-term memory, improving left sided strength, improving cognition. Large-dose sedated radiation completed x 3.

- Mobility
- Hunger/thirst
- Medication management
- Staff/patient interaction
- Family involvement

Step down Unit

Patient Presentation: periods of agitation (improved), PRN restraints, sitter, no short-term memory, improved left side strength, improved cognition

- Mobility
- Staff/patient interaction
- Family involvement

Home

Patient Presentation: periods of agitation at night, confusion, no short-term memory, improved long-term memory, improved strength

- Orientation
- Mobility
- Community involvement
- Bowel/bladder management
- Nighttime agitation

Questions?

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