Physiology of Pain Perception

- Transduction
- Transmission
- Modulation
- Perception
- Interpretation
- Behavior

The brain first perceives the sensation of pain

- The thalamus, sensitive cortex: perceiving, describing, localizing of pain
- Parts of thalamus, brainstem and reticular formation: identify dull, longer-lasting, and diffuse pain
- The reticular formation and limbic system: control the emotional and affective response to pain

Because the cortex, thalamus and brainstem are interconnected with the hypothalamus and autonomic nervous system, the perception of pain is associated with an autonomic response.
### AGE RELATED CHANGES
- Reduction in number & function of peripheral nociceptor neurons
- Increase threshold for thermal & vibratory stimuli
- Diminished endorphins
- Altered endogenous inhibition: hyperalgesia

- 50% cognitively intact patients given scheduled pain medication compared to 25% of cognitively impaired patients
- 43% of in-patients with AD were diagnosed with painful conditions - only 7% were receiving regularly scheduled pain medicine

### CAUSES OF PAIN IN ELDERLY
- Osteoarthritis
- Myofascial pain
- Peripheral neuropathy
- Back pain
- Peripheral vascular disease
- Constipation
- Post-herpetic neuralgia
- Cancer pain
- Dental pain

### PAIN IN THE ALZHEIMER’S PATIENT
- Destruction of the limbic structures, hippocampus and prefrontal cortex (motivation, emotion, learning & memory) likely explains the deterioration of the affective and emotional components of pain in AD patients (Borsook, 2011)
- The autonomic response to pain is decreased in AD

### DO AD PATIENTS FEEL PAIN?
- Until recently, the prevailing hypothesis was that AD patients feel less pain
- Cole, et al. a brain imaging study showed central pain processing & perception were not altered in AD (Cole et al., 2010)
- Pain signals lasted longer in AD pts with sustained attention to the painful stimuli

- The Thalamus and Sensory-discriminative sensation may be preserved, even in advanced disease, while pain tolerance increases with disease severity (Borsook, 2011)
- The issue is further complicated by the diminished ability to report pain (Borsook, 2011)
- It may be even more distressing by their inability to understand the unpleasant sensation
“Pain is whatever the patient says it is, existing whenever he / she says it does.”
(McCaffery, 1968)

“Pain is an unpleasant subjective experience that can be communicated to others either through self report when possible or through a set of pain-related behaviors”
(Kaaselainen & Crooks, 2003)

PAIN ASSESSMENT
- Difficulty with remembering, interpreting, responding to & reporting of pain
- May manifest in atypical behaviors (ref)

ASPMN POSITION STATEMENT
- Self-report: even in mild to moderate, but not in severe. Don’t use numeric scale
- Search for a cause
- Observe behaviors
- Proxy report
- Attempt analgesic trial
(aspmn.org) 2011

Numerical rating scale (NRS)

PAIN BEHAVIORS
- Rapid blinking
- Other facial expressions
- Agitation, aggression
- Crying, moaning
- Withdrawn, quiet
- Guarding
- Noisy breathing
- Negative vocalization
- Fidgeting
- Restlessness, tension, pulling away, confusion, gait change, sleep change, tears

Pain Assessment Checklist for Seniors with Limited Ability to Communicate (PACSLAC)
Indicate with a checkmark, which of the items on the PACSLAC occurred during the period of interest.
Scoring the sub-scales is derived by counting the checkmarks in each column
To generate total pain, sum all sub-scales totals
Mrs. Smith is an 85 year old with AD who had been living with her daughter after her husband’s death. However, after a serious fall and long hospitalization, she was admitted 1 year ago to your memory care facility. She has regained most of her mobility, uses a walker and ambulates with a hunched gait. Her medical conditions include DM, OA, HTN and multiple compression fractures. Today, she has not eaten her breakfast and is fidgeting in her chair. Her memory has deteriorated and she is not oriented to days or seasons and can’t locate her room. She recognizes only a few staff. She requires much assistance and is easily distracted. Since yesterday, she seems more restless and has been calling “help” throughout the day. She begins crying spontaneously and during her bath, was seen rubbing her back constantly. She seems more tired than usual and never smiles anymore.

TREATING PAIN IN AD

- Decreased renal function
- Decreased lean body weight
- Decreased liver mass and hepatic flow
- Decreased activity of some drug metabolizing enzymes
- Decreased serum protein concentrations
- Decreased pulmonary function

NON-OPIOIDS

- When in doubt, do an analgesic trial
- Acetaminophen
  - Drug of choice for OA
  - Limit of 2 grams per day
  - Can be used around the clock for chronic pain
- NSAIDS
  - Inhibit prostaglandin synthesis
  - Risk of GI bleed, renal problems, platelet dysfunction

OPIOIDS

- Used for nociceptive and neuropathic pain
- No ceiling to analgesic effect
- Elderly may be more sensitive
- Prolonged half-life with advanced age prolongs pharmacokinetics of drugs

CONSTITUTION

- START LOW AND GO SLOW
INTERVENTIONAL TREATMENT

- Provide temporary, but often, substantial relief and allow to lower or eliminate opioids for a while
- Can be done without anesthesia or with very minimal sedation
- Epidural steroid injection
  - Low back and neck with radicular pain
- Hip, shoulder, elbow, knee injections

REFERENCES

SCHLICTING DEMENTIA CONFERENCE
EXPLORING CLINICAL AND SOCIAL ISSUES

TOOLS FOR ASSESSING PAIN IN INDIVIDUALS WITH DEMENTIA

CYNDEE FREY, RN

SPIRITUALITY

- Spirituality is connectedness to
  - the divine
  - religion
  - people
- Disconnectedness can lead to
  - emotional pain
  - physical pain

DEFINITION OF SPIRITUAL PAIN

Spiritual pain is defined in terms of a diminished or lack of the following human experiences:
- sense of meaning or purpose in one’s life,
- sense of connectedness to someone or something,
- sense of forgiveness of self or others, and hope
(Groves & Klauser, 2009).
SOME PATIENTS DESCRIBE THEIR SPIRITUAL PAIN IN TERMS OF PHYSICAL OR EMOTIONAL EXPERIENCES.

THEY MAY HAVE A DIFFICULT TIME DIFFERENTIATING THE CAUSE OF THEIR PAIN.

EXAMPLES OF PHYSICAL SYMPTOMS

- Decreased appetite
- Wandering
- Lethargic
- Decrease in mobility

EXAMPLES OF EMOTIONAL PAIN

- Tearful
- Depression
- Angry outbursts
- Obsessive need to be with someone or alone

THANK YOU

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