Post Stroke Pain

Ann Quinlan-Colwell
PhD, RN-BC, DAAPM

Conflict of Interest Disclosure

• Conflicts of Interest for author is:
  A consultant for and on the Mallinckrodt
  Speakers Bureau for non-branded education.

A conflict of interest is a particular financial or non-financial circumstance that might compromise, or appear to compromise, professional judgement. Anything that fits this should be included. Examples are owning stock in a company whose product is being evaluated, being a consultant or employee of a company whose product is being evaluated, etc.


Any views or opinions in this presentation are solely those of the author/presenter and do not necessarily represent the views or opinions of the American Society for Pain Management Nursing®.
Pain

“An unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage.”

(IAFP definition)

“Pain is whatever the experiencing person says it is, existing whenever he says it does.”

(McCaffery, 1968)

Types of Pain

• Acute
  – Somatic
  – Visceral

• Chronic
  – Somatic
  – Visceral

• Neuropathic

• Combinations

Epidemiology of Post Stroke Pain

• Prevalence
  – estimated between 19% and 74%

• Challenges to accuracy:
  – Variation in
    • HCP consideration or identification
    • patient endorsement
  – Lack of standardized assessment

• Results in
  – impaired recovery
  – Reduced quality of life
Which is true?
Identifying pain in a patient who has had a stroke is complicated by:

a) Lack of HCP awareness 
b) Challenges in stabilization and rehabilitation 
c) Communication challenges 
d) All of the above

Occurrence

• Pre-existing
• At the time of the stroke
• Post stroke
Assessment

• Identify pre-existing chronic pain conditions
• Identify stroke related injuries
• Screening Tools
• Clinical Examination
• Pain specific assessment
  – Pain Intensity
  – Pain Quality
• Functional Ability

True or False

Pre-existing chronic pain is the easiest to identify and treat in a patient following a stroke.

True or False

Pre-existing chronic pain is the easiest to identify and treat in a patient following a stroke.

True

However
Pre-existing Chronic Pain

• “Easiest to identify and treat”

• Challenges:
  – Overlook
  – Minimize import
  – Discontinue Rx

Assessment of Pre-existing Chronic Pain

• Patient
• Family
• PCP
• Community pharmacy

Intervention for Pre-existing Chronic Pain

• Resume chronic Analgesic Plan of Care (APOC)
• Monitor
• Adjust
Assessment of Stroke Related Traumatic Injuries

- Function
- Non-verbal cues
- Family input
- Testing

Stroke Related Traumatic Injuries

- Muscle strains
- Dislocations
- Fractures
Interventions for Stroke Related Traumatic Injuries

- Injury specific
- NSAIDS
- Muscle Relaxants
- Casting, splinting, slings
- Physical Therapy
- Non-pharm interventions

Pain Resulting from the Stroke

Of the following which painful condition/s may be related specifically to the stroke:

a) Spasticity
b) Persistent h/a
c) Contractures
d) Musculoskeletal pain
e) Neuropathic pain
f) Central post stroke pain

Pain Resulting from the Stroke

Of the following which painful condition/s may be related specifically to the stroke:

a) Spasticity
b) Persistent h/a
c) Contractures
d) Musculoskeletal pain
e) Neuropathic pain
f) Central post stroke pain
Central Post-stroke Pain

All of the following are true of Central post-stroke pain (CPSP) except
a) Prevalence is 8% - 46%
b) Difficult to control
c) Easy to identify
d) Impairs recovery
e) Impairs quality of life
Central Post-stroke Pain

- "Syndrome thalamique"
- Markedly under-recognized
- Complicated by:
  - Other pain conditions
  - Comorbidities

(Quinlan-Colwell, 2014)

CPSP Diagnosis is Challenging

In one study experts disagreed on CPSP diagnosis in what percent of the cases?

a) 11%
b) 22%
c) 43%
d) 77%
CPSP Characteristics

- Location
  - Isolated areas
  - Entire side

- 85% report either
  - Dysesthesia
  - Alldynia

CPSP Duration & Description

- Spontaneous and intermittent
  - Shooting
  - Lacerating

- Prolonged
  - Burning
  - Pricking
  - Aching
  - Freezing

CPSP Diagnosis

- Made by exclusion

- Suggested to be essential for CPSP diagnosis
  1) h/o stroke w/pain developing after stroke onset
  2) Physiological pain that corresponds to a confirmed CNS lesion
  3) Nociceptive and peripheral NP not likely causes
CPSP Diagnosis continued

• Suggested to be supportive of CPSP diagnosis
  – Pain is not related primarily to movement, inflammation or tissue damage
  – Description includes:
    • “burning”
    • “painful cold”
    • “electric shocks”
    • “tingling”
    • “pins and needles”
    • “aching”
    • “pressing”
  – Touch or cold produce allodynia or dysesthesia
    (Greenequaye et al, 2004; Gori et al, 2009; Quinlan-Colwell, 2012)

Central Post-stroke Pain Treatment

• Which of the following is/are not recommended for treatment of CPSP?
  a) NSAID
  b) Local anesthetics
  c) NMDA receptor antagonists
  d) opioids
Multi-modal Treatment of Central Post-stroke Pain Specific

Multi-modal Treatment
- Essential to use multi-modal approach
- Difficult to treat
- Studies have been small
- No medication is currently FDA approved for CPSP
- Concerns using medications with older adults

1st Line Treatment Options

(Henry, Lalloo & Yashpal, 2008)
Tricyclic Antidepressants (TCAs)

• Amitriptyline
  – Effective at 75 mg/day (Leijon & Boivie, 1989)
  – Lower doses not beneficial (Sindrup, et al, 2005)

• Concerns/Cautions
  – Anti-cholinergic effects
  – Particular concern for amitriptyline w/ older adults (Quinlan-Colwell, 2012)

Calcium Channel Ligands

• Gabapentin
  – N-1 case study showed pain relief (Oliva, et al, 2002)
  – Reversed mechanical bilateral allodynia (Castel & Vachon, 2014)

• Pregabalin - effective with CPSP
  – Clinical significance (Kim et al, 2011)

Lamotrigine

• An anti-glutaminergic preparation
• FDA approved as anticonvulsant

• Effective in reducing CPSP:
  – 30 older adults with 200 mg/day (Vestergaard, et al, 2001)
  – Good results with 300 – 600 mg/day (Fox, et al, 2006)

• Side Effects
  – Rash
  – Headache (Vestergaard, et al, 2001)
2nd Line Treatment Options

Opioids

- Can be effective in overall APOC but (Kilt, 2009)
- Generally are not effective
- High withdrawal rate (Kilt, 2009)

Interventional Treatment of Central Post-stroke Pain

- Vestibular caloric stimulation
- Deep brain stimulation
- Spinal cord stimulation
- Motor cortex stimulation
Post Stroke Shoulder Pain

- Prevalence between 5% - 84% (Chae, et al, 2007)
- Increases with post stroke time
- Correlated with
  - Motor deficit
  - Affected side
  - Severity of impairment

Characteristics of PSSP

- Pain may present as
  - Neuropathic
  - Spastic
  - Somatic
- Complex Regional Pain Syndrome may develop
Crucial

- Prevention!!!!
- Early awareness and intervention
- Prevent additional injury

Treatment of PSSP

- Physical Therapy
- Mechanical Interventions
  - Thermal treatment
  - Positioning
  - Strapping
  - Slings – opinions differ
  - TENS
- Education
  - Patient
  - Caregivers

Medications for PSSP

- NSAIDS
- Anti-spasmodics
- Botulism IM studied (Marcu et al, 2007)
- Subscapularis injections (Yelnick et al, 2007)
Non-pharm interventions

• Non-pharm interventions are helpful for:
  a) Chronic pre-stroke pain
  b) Injuries at the time of the stroke
  b) Central post stroke pain
  c) Post stroke shoulder pain
  d) All of the above
  e) None of the above

Non-pharm interventions

• Non-pharm interventions are helpful for:
  a) Chronic pre-stroke pain
  b) Injuries at the time of the stroke
  b) Central post stroke pain
  c) Post stroke shoulder pain
  d) All of the above
  e) None of the above

Non-Pharm Interventions

• Physical / Occupational Therapy
• Transcutaneous electrical nerve stimulation (TENS)
• Cognitive Behavioral Therapy
• Stress Management Education
• Guided Imagery
• Relaxation
• Acupuncture
• Therapeutic Touch
References
**Terminology**

- **Allodynia** – usually painless stimuli that is perceived as painful
- **Hyperalgesia** – intensified response to a noxious stimuli
- **Paresthesias** – abnormal sensations (i.e., spontaneous pins & needles)
- **Dysesthesias** – unpleasant perception of sensory stimuli to the skin
- **Hyperpathia** – increased reaction especially to a repetitive stimulus; “explosive”