Pain Management in Rehabilitation Nursing

Certification Exam Prep 2007
Bouvette Maryse, RN, BScN, MEd, CON(C), CHPCN(C)
Baldwin Heather, R.N., B.Sc.N

The Rehabilitation Centre / Le Centre de réadaptation

SERVICE DE SANTÉ SCO HEALTH SERVICE

Objectives

- To understand the concept of pain
- To identify the key elements of pain assessment
- To review pain management strategies (pharmacological/ non-pharmacological approaches)
- To review several pain management scenarios within the rehabilitation population

Pain:
A multidimensional Experience

Pain is whatever the experiencing person
says it is,
existing whenever he (or she)
says it does."

Margo McCaffery

Specificity Theory of Pain

Stimulation of pain receptors/nerve endings
(e.g. with injury/tissue damage)
causes pain messages to be sent to the brain
via the spinal cord

??? Does this fully explain pain???

Pain Definition

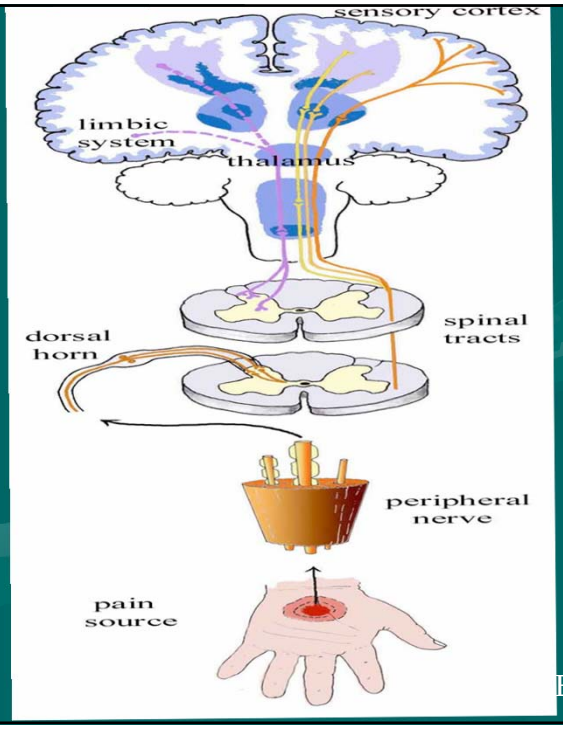
Pain is a subjective experience.
It is an unpleasant sensation,
experienced both physically, and emotionally.
It may be triggered by a physical stimulus
but the pain experienced is
modulated by a variety of factors.

Gate Control Theory of Pain

Gate Control Theory more fully explained pain then previous theories …..

but as we learn more about the central nervous system, genetics, and pain….

Theories evolve to improve our understanding of how pain works.



By David Nelson

Neuromatrix Theory of Pain

The “body-self neuromatrix” is a widely distributed network of neurons in the brain, initially genetically determined, but modified by each individuals unique experiences

(Melzack 2005)

Neuromatrix Theory of Pain

The“neurosignature” or unique patterns of nerve impulses are continuously being generated by the neuromatrix to “the sentient neural hub” where it is creates an awareness of the currrent situation, and can activate the neuromatrix to create a pattern of movement

Neuromatrix Theory of Pain

The pain “neurosignature can be triggered by sensory input (e.g. tissue trauma)

HOWEVER it does not produce the neurosignature…. The neuromatrix can produce a neurosignature independent of feedback from the periphery.

So the origin of pain is in the brain.

Acute Pain

- May last seconds or up to less than 6 months
- May be mild, moderate, or severe
- Warns of potential harm or tissue damage/organic disease

(Meinhart et al 1983)

Chronic Pain

- Pain, infection, injury, psychological stress initiate sympathetic systems within the body in order to regain homeostasis (includes release of cortisol, adaptive if time limited).
- If the situation is prolonged (homeostasis not achieved) sustained/excessive release of cortisol may produce myopathy, weakness, fatigue, decalcification of bone...
- The neuromatrix will continue and perhaps even increase output of the pain neurosignature in an effort to achieve homestasis.

Chronic Pain

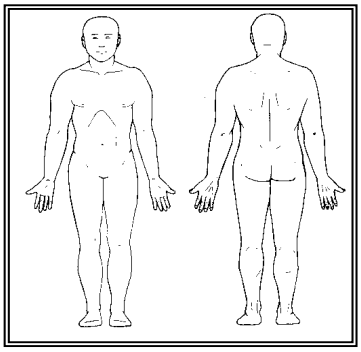
With persistent ongoing pain, there are also physiochemical changes in the neural pathways/pain receptors providing input to the dorsal horn/substantia gelatinosa...
the “gate” opens with less nociceptive input
&
more antinociceptive input is required to “close” the gate
&
opioid medications are less effective

- To identify the key elements of pain assessment
- To review pain management strategies
- (pharmacological/ non-pharmacological approaches

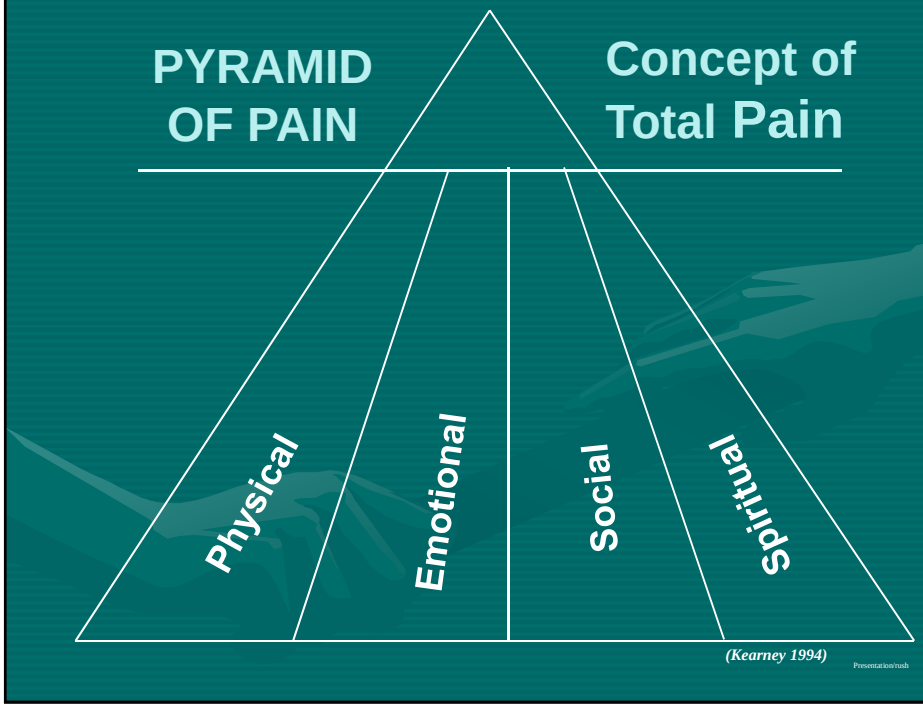
Pain assessment: Hx

Basic Elements of Pain Assessment

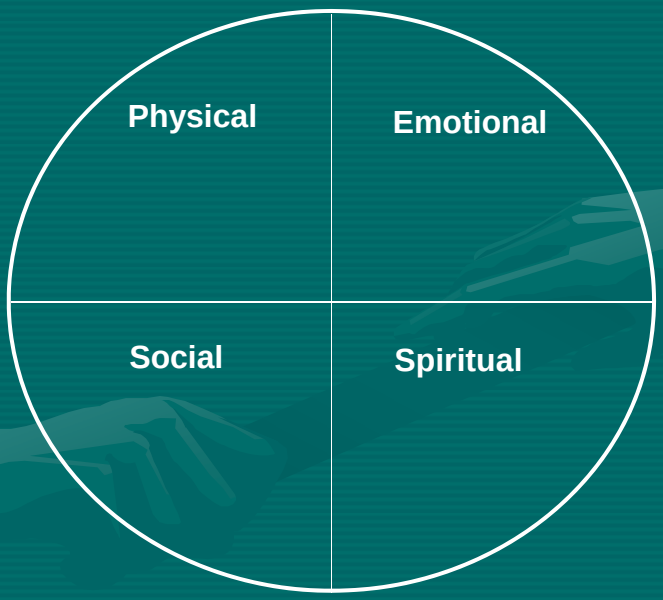
Site(s) of pain and radiation



- **Time /Patterns/ Duration**
- **Quantity (scales)**
- **Quality**
- **Effect on: Sleep, mood, ADL**
- **Aggravating/alleviating factors**
- **Other medications**
- **Other treatments/approaches**
- **Other concerns**



Holistic Approach to Pain



Factors Decreasing Pain Threshold

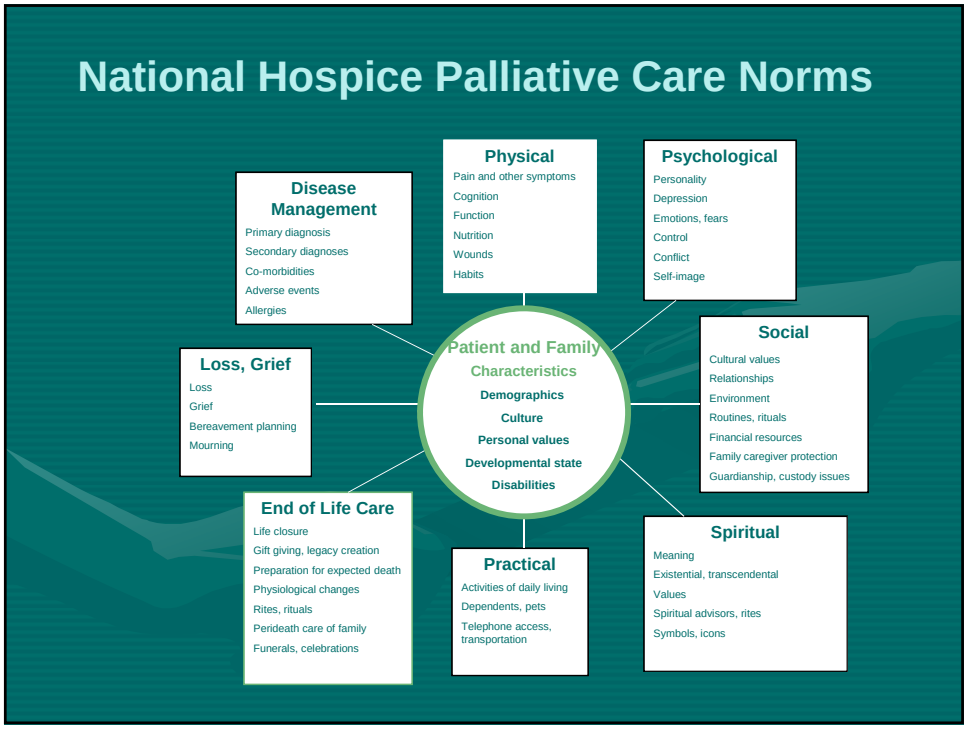
⇒ ↑ **Pain experience**

⇒ ↓ **Well being**

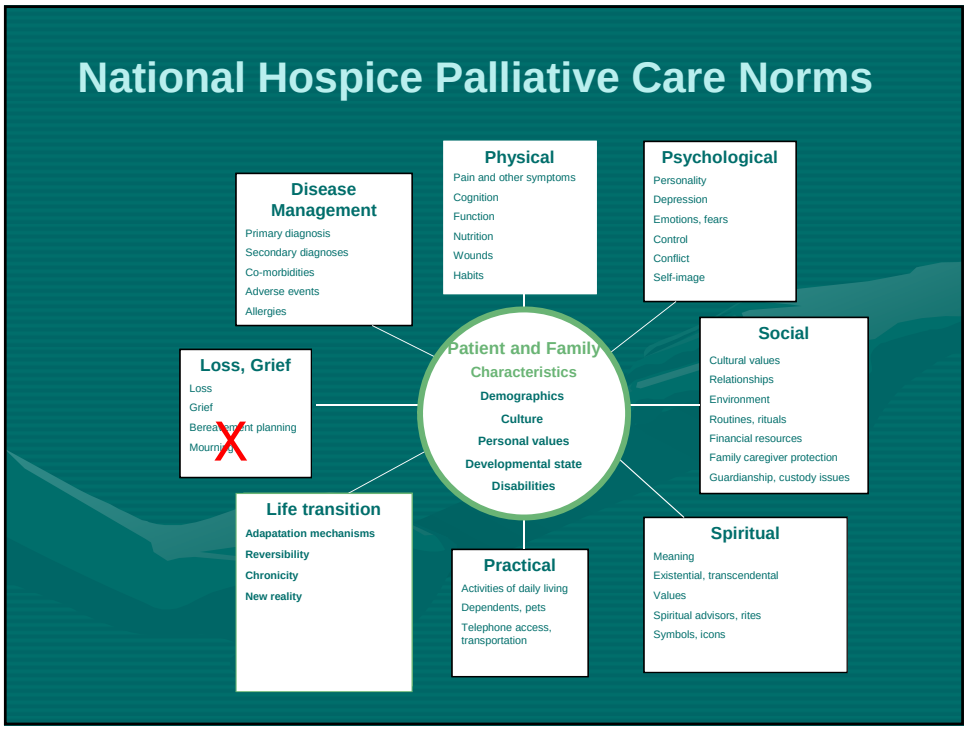
Fatigue
Sadness
Social Isolation
Anxiety
Anger …

Fear
Boredom
Insomnia
Depression

National Hospice Palliative Care Norms



National Hospice Palliative Care Norms



Pain: Physical Assessment

- Tenderness, deformity
- Trigger points
- Weakness
- Hyperalgesia
- Allodynia
- Parasthesia, numbness
- Wasting

Pain Assessment

- Appropriate tests
- Consider other symptoms:
  - Infections (pneumonia, UTI)
  - Delirium
- Goals of care****

Pain Sources

- Neuromuscular
- Skeletal
- Cardio-vascular
- Diabetes
- Cancer
- Specific pain syndrome
- Other

Medication Review

- Polypharmacy
- OTC meds
- ETOH
- Other drugs

Pain Assessment Tools: Cognitively able

- Verbal Scale: zero to ten (thermometer)
- Faces Pain Scale (ex. Wong and Baker)
- Visual analog scale:

  No pain ----------Worst
- Brief pain inventory
- Mc Gill Pain Questionnaire
- ESAS

Pain Assessment Tool For Children

- Pre-verbal children: FLACC scale
- Pre-school to the age of 7: Faces pain scales
- More then 8: Numerical rating scales

Pain Assesment Tool For Cognitively Impaired

Exemples:

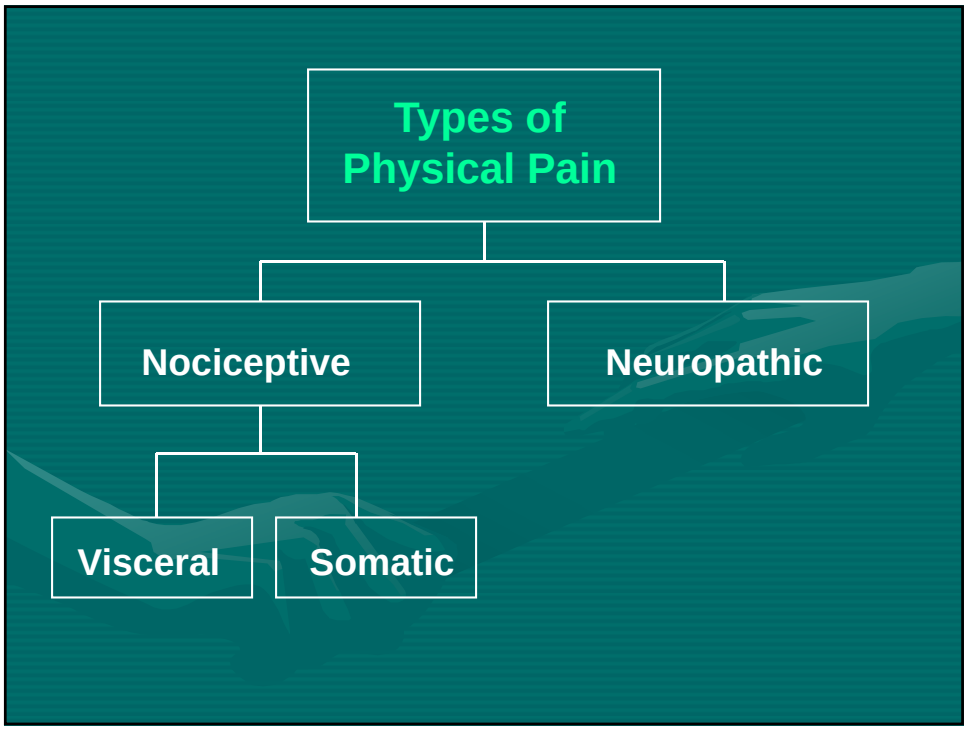
- Behavioural checklist
- PAINAD (Pain Advanced Dementia)
- Doloplus

Behavioural Indicators

- Changes in social interactions
- Changes in common activity
- Changes in posture
- Changes in appetite
- Changes in facial expression
- Changes in sleep pattern
- ADL's

Pain assessment

Consider the environment



Nociceptive pain . . .

- Direct stimulation of intact nociceptors
- Transmission along normal nerves
- somatic (e.g. skin, bone, muscle)
  - easy to describe, localize
  - sharp, aching, throbbing
- Visceral (organs)
  - difficult to describe and to difficult to localize
  - Deep, cramping, vague, not localized

Neuropathic pain . . .

- Disordered peripheral, autonomic or central nerves
- Compression, transection, infiltration, ischemia, metabolic injury, toxic damage

. . . Neuropathic pain

- Pain may exceed observable injury
- Described as burning, tingling, shooting, stabbing, electrical
- +/- hyperalgia, allodynia, etc.

Nociceptive and Neuropathic (Mixed)

- Good pain history
- Physical assessment
- Appropriate investigations

…**congruant with the goal of care**

What are the reasons for poor pain control?

- Not believing the patient
- Inconsistent reports by patient
- Not identifying non-verbal cues
- Not giving analgesics regularly
- Inadequate doses of analgesics
- Non-use of co-analgesics/ non-pharmacological approaches
- Fear of addiction/ overmedication

Untreated pain leads to:

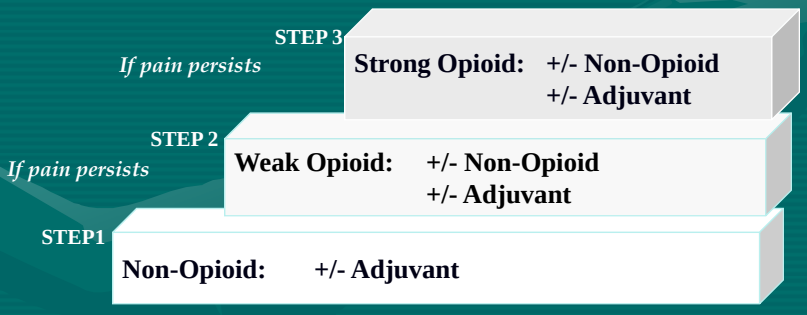
- Depression
- Deconditioning
- Malnutrition
- Anger
- Anxiety
- Confusion
- Agitation
- Sleep disturbance
- Neurophysiologic changes
- Worsening of cognition

Challenges: (specific for the elderly)

- Elderly don't report (subjective nature of pain)
- Presentation (e.g. confusion, behaviour changes)
- Heterogeneity of population - Multiple diseases
  ⇒ Polypharmacy
- Physiologic changes
- System issues
  ⇒ Lack of social support ("Total Pain")

Analgesic Steps

Non-Opioids = aspirin, acetaminophen, other NSAIDs
Weak Opioids = codeine, oxycodone
Strong Opioids = morphine, hydromorphone, Fentanyl, oxycodone
Adjuvants = steroids, psychotropic drugs, anticonvulsants



Pharmacological Principles

- M Minimize
- A Awareness
- S Start low/Slow (proper titration)
- T Titrate
- E Educate
- R Review

Conversion Table

GUIDELINES FOR OPIOIDS

EQUIVALENCY TABLE OF OPIOIDS

Remember: *Morphine (oral) is always used as the drug reference.*
These conversions are guidelines but patients require ongoing assessment and adjustments made accordingly.

DRUG	DOSE p.o. (mg)	DOSE s.c. (mg)
Morphine	20	10
Hydromorphone	4	2
Oxycodone	10	N/A
Codeine	200	100
**Fentanyl transdermal 25 mcg/ hr See example C	Morphine 90 mg/ 24 hr	Morphine 45 mg/ 24 hr

*** Not recommended for uncontrolled pain*

NB: Meperidine (Demerol) is not recommended for chronic cancer pain, mainly because Normeperidine, its metabolite, causes seizures (300 mg po Meperidine = 20 mg po Morphine & 75 mg iv/im Meperidine = 10 mg sc Morphine)

Opioid Myths

Many patients harbor fears about opioids.

- "It means the end is near"
- "Opioids cause addiction"
- "Opioids will lose their effectiveness over time, leaving nothing to treat severe pain 'at the end'
- "Opioids will make me a zombie or take away my mental capacity"
- "They will stop my breathing"
- "They will my shorten life"

Pallium Project 2005

Breakthrough

Dose Calculation

Using approximately 10% of the total 24 hour dose

(Q2H po PRN)

(Q1H s.c PRN)

Do NOT use extended-release opioids

Titrating the Dose

Example:

Morphine 20 mg p.o. q 4hrs.
Therefore, 20 mg x 6 doses = 120 mg for 24hrs.
Patient is also on Morphine 10 mg p.o. q 2hrs. PRN. Patient received 5 breakthrough doses in the same 24hrs.
Therefore, 10 mg x 5 doses = 50 mg for 24hrs.
Patient, therefore received a TOTAL dose of 120 mg + 50 mg = 170 mg for 24 hrs.

New order could then be as follows:

Morphine 30 mg p.o. q 4hrs straight.

Morphine 20 mg p.o. q 2hrs PRN for breakthrough pain

Regular versus PRN

Regular dose of opioid: Morphine 30 mg Q4h

-------06------10------14------18------22------02-

Breakthrough dose of opioid:

ex: Morphine 20 mg Q2h PRN

Your patient is due for his regular Morhpine dose at 10hr AM. At 9:45hr, he is telling you that he is experiencing a lot of pain. What should be the appropriate response from the nurse?

a) She tells him to wait 15 minutes more minutes as this is when he is due for her next dose.

b) She gives him his 10hr dose 15 minutes earlier.

c) She gives him a PRN dose now and will give him his10hr dose.

d) She gives him a PRN dose and reassess his need for the 10hr dose.

The Coanalgesics…

- NSAIDs
- Corticosteroids
- Tricyclic antidepressant
- Anticonvulsants
- Neuroleptics
- Local anaesthetics
- Bisphosphonates
- NMDA antagonists
- Others:
  - Clonidine
  - Baclofen
  - Capsaicin
  - Etc….

Opioid Side effects

- Constipation
- Nausea/ vomiting
- Opioid neurotoxicity:
  - Myoclonus
  - Hallucinations/ nightmares
- “Respiratory depression”
- Confusion
- Sweating, pruritis (histamine release)
- True allergy (extremely rare)

Non-Pharmacological Approaches

Physical modalities

Immobilization

Positioning

Cutaneous stimulation

- heat/cold
- menthol ung.
- massage
- vibration
- pressure

Exercises

Mobility/Transfer aids

Counterstimulation

Tens - Acupuncture

Non-Pharmacological Approaches

Psychosocial modalities

education
distraction
creative activity
art therapy
music therapy
relaxation
imagery
pastoral counseling
meditation
biofeedback
hypnosis
cognitive & behavioral therapy
support
Reiki
others….

Pain Management Scenarios Within the Rehabilitation Population

Scenario #1

Mr.H is seen in the Chronic Pain Outpatient Clinic. He reports constant aching low back pain.

- Average pain 6/10 Highest pain 10/10 Lowest pain 4/10
- Pain levels are worse at night with insomnia, there has been some improvement with antidepressant.
- Investigations: DDD lumbar spine, no improvement with conservative treatment
- antidepressant only medication (too many side effects with other medications)
- He reports feeling depressed/frustrated.
- He cries when discussing increased pain following intercourse and difficulty maintaining an erection.
- He reports that he feels his wife is no longer interested in intercourse. He identifies this as his primary concern.

Scenario #1 Question #1

Factors affecting Mr.H's sexual functioning may include;

a) fatigue
b) pain
c) depression
d) role changes
e) all of the above

Scenario #1 Question #2

Strategies to assist Mr.H may include:

a) review of sexual positions to minimize back stress
b) discuss planning, pacing of sexual activity
c) discuss how he can discuss concerns /solutions with his wife
d) discuss participation in an interdisciplinary pain management program
e) all of the above

Scenario #2

- Mrs. B is a 60 year old woman admitted to your rehabilitation centre following a left BKA (below knee amputation).
- She reports intermittent low back pain 4/10 at the end of the day, pain at the incision (8/10 during dressing changes), and mild cramping, itching, pressure sensation in her missing foot.
- She has been prescribed Tylenol #3 prn but is reluctant to take them, as she reports she dislikes taking medications.

Scenario #2 Question #1

Mrs. B is experiencing what types of pain

a) post-operative /residual limb pain
b) procedural pain
c) Phantom pain/Phantom sensation
d) Intermittent low back pain
e) All the above

Scenario #2 Question #2

Strategies to assist Mrs. B may include:

a) regular administrative of Tylenol #3 e.g. one q4h
b) ensuring dressing changes occur ½ hour after Tylenol #3
c) reassurance and explanation re: phantom pain vs. sensation, and pain management strategies.
d) use of co-analgesics anticonvulsant (e.g. gabapentin) or tricyclic antidepressant (e.g. elavil)
e) All of the above.

Scenario #3

Mr. M. is a 54 year old paraplegic re-admitted to your ward last week. Injury six months ago.

- reports intermittent aching pain in shoulders 6/10 which is interfering with his transfers.
- constant burning pain in thighs 7-9/10
- causing difficulty with sleep onset, and nocturnal awakening

Scenario #3 Question #1

Medications to better manage Mr.M's pain may include:

a) muscle relaxants
b) opiods
c) anticonvulsant (e.g. gabapentin)
d) antidepressants
e) anti-inflammatory
f) all of the above

Scenario #3 Question #2

Non-pharmacological strategies could include:

a) relaxation techniques
b) TENS
c) re-examine current wheelchair /transfers
d) cognitive-behavioural strategies
e) all of the above

References

- Back Pain: a Multicenter randomized controlled trial. Spine 2001:26, p.2521-2534
- Brookoff D. Chronic Pain: A New Disease Hospital Practice 2000
- Fritzell P, Hagg O, Wessberg P, Nordwall A. Lumbar Fusion versus Nonsurgical Treatment for Chronic Low Melzack, R Evolution of the Neuromatrix Theory of Pain. The Prithvi Raj Lecture Pain Practice, Volume 5, 2005 p.85-94

References

- Halbert, J. Crotty, M. Cameron, I. Evidence for the Optimal Management of Acute and Chronic Phantom Pain: A Systematic Review The Clinical Journal of Pain 2002, 18(2) P.84-92
- Herr KA,Garand L. Assessment and measurement of pain in the older adults. Clinics in Geriatric Medicine, 2001, 17 (3): 457-478
- Patterson DR, Tininenko J, Ptacek JT. Pain During Hospitalization Predicts Longterm Outcome. Journal of Burn Care and Research 2006:27(5), p.719-726
- Henderson, M. Boys Who Couldn't Feel Pain Lead Scientaists to Gene Discovery Ottawa Citiizen Dec 2006

References

- Siddall, P. Cousins, M. Otte, A. Griesing, T. Chambers, R. Murphy, T. Pregabalin in Central Neuropathic Pain Associated with Spinal Cord Injury Neurology 2006, 67, p1792-1799.
- Widerstrom-Noga, E. Felipe-Cuervo, E. Yezlerski, R. Relationships Among Clinical Characteristics of Chronic Pain After Spinal Cord Injury Archives of Physical Medicine and Rehabilitation 82, Sept 2001, p.1191-1197.
- Villanueva, MR and al.. Pain Assessment for the Dementing Elderly (PADE): reliability and validity of a new measure. J Am Med Dir Assoc. 2003 Jan-Feb;4 (1):1-8

References

- Fishbain, D., Brandley, C. Cutler,B., Lewis,J., Rosomoff.H, Rosomoff,S. Is Pain Fatiguing? A Structured Evidence-Bassed Review American Academy of Pain Medicine 4 (1) 2003 p.51-62.
- Ambler, N., Williams, A., Hill, P, Gunary, R., Cratchley, G. Sexual Difficulties of Chronic Pain Patients The Clinical Journal of Pain 17 (2) p.138-145
- Parkinson, M., Bateman, N. Disorders of Sexual Function caused by Drugs Prescribers' Journal 34 (5) 1994 p.183-191.
- King, Steven. Exploring Phantom Limb Pain Psychiatric Times 13 (4) April 2006

References

- (Putzke et al 2002) (Widerstrom-Noga et al 2001) (Henderson 2006)
- Putzke, J., Richards,S., Kezar,L., Hicken, B., Ness, T. Long-Term Use of Gabapentin for Treatment of Pain After Traumatic Spinal Cord Injury The Clinical Journal of Pain 18 2002 p.116-119
- Widerstrom-Noga, E., Felip-Cuervo, E., Yezlerski, R. Relationships Among Clinical Characteristics of Chronic Pain After Spinal Cord Injury Archives of Physicl Medicine and Rehabilitation 82 2001 p.1191-1197.

Bibliography

- Ferrell. Betty (2004) Palliative Nursing, New York, Oxford Press, p.1246
- MacDonald, Neil and al. (2005) Palliative Medicine, a case-based manual,Oxford Press, p.421
- Mc Caffrey, Margo and Chris Pasero (1999) Pain, clinical manual, Missouri,. Mosby, p.795
- Pharmacy Specialty Group on Palliative Care (2000) Care beyond cure, a pharmacotherapeutic guide to palliative care p. 212
- Meinhart, N. McCaffery, M. (1983) Pain: A Nursing Approach to Assessment and Analysis Appleton-Century-Crofts.

Bibliography

- Hebert, L (1994) Sex and Back Pain...advice on restoring comfortable sex that has been lost to back pain The Saunders Group.
- Carrol, K. Edelstein, J. (2006) Prosthetics and Patient Management: A Comprehensive Clinical Approach Slack Incorporated
- Bryant, R. Nix, D. (2007) Acute & Chronic Wounds: Current Managment Concepts Mosby Inc.
- Lusardi, M. Nielson, C. (2000) Orthotics and Prosthetics in Rehabilitation Butterworth-Heinemann