Pain Management in Geriatric Patients

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Albert Schweitzer

Whoever is spared personal pain must feel himself called to help in diminishing the pain of others. We must all carry our share of the misery which lies upon the world."

1875 –1965



Objective

- Understand how to define and classify pain in older adults
- List social and environmental factors affecting the perception of pain and its treatment common to older adults
- Recognize the scales available to assess pain
- List medical and non-medical treatments available for pain

Demographics

- Median successful aging increased
- > 65 years represents about 36 million; by 2020 54million
- Fastest growing segment of the population is > 85 years

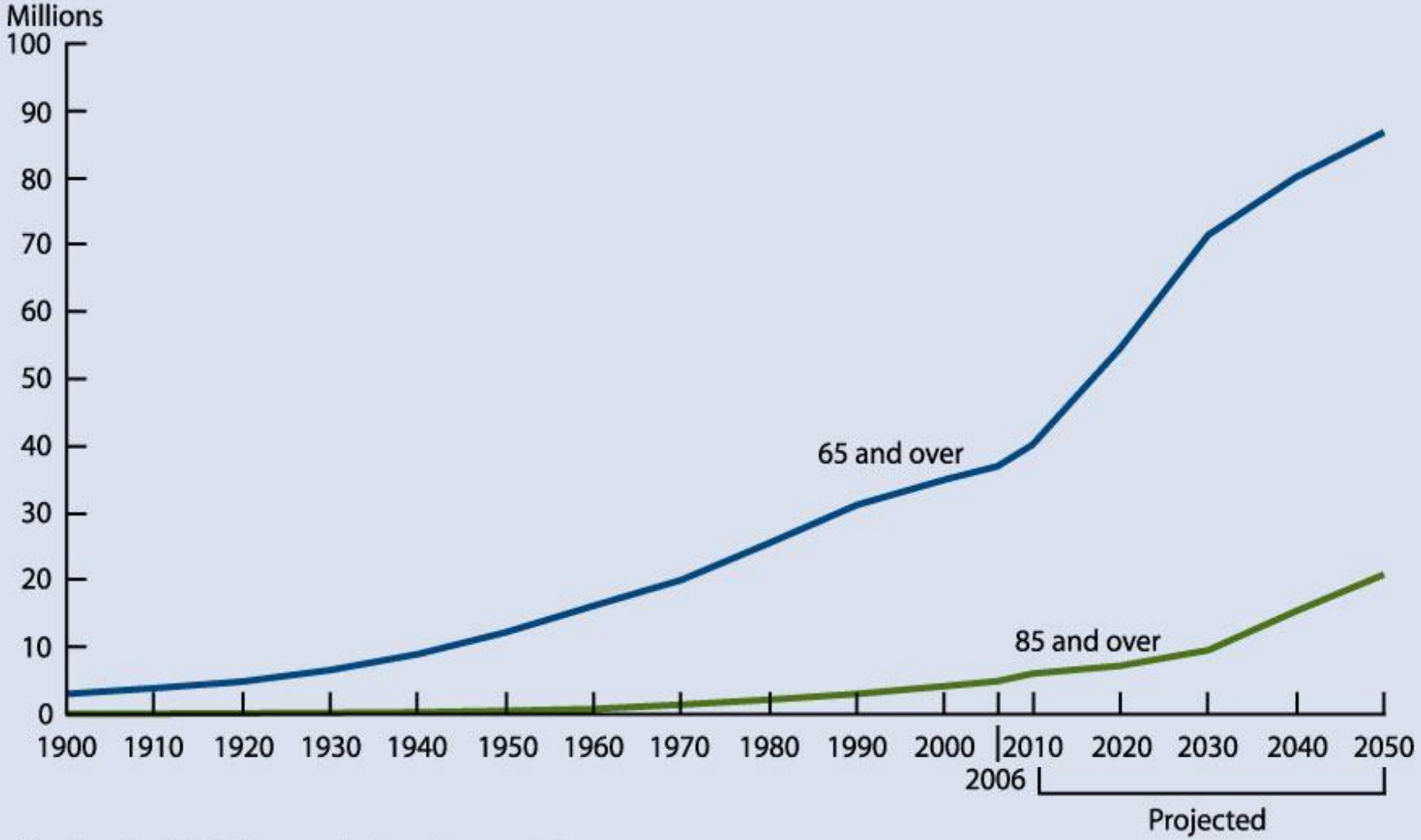
  Currently 5 million, 20 million by 2050
- 1900's - 3 million elderly (1 in 25 Americans), by 2020, 54 million (1 in 6 Americans)
- 2011 - first baby boomers reached 65

U.S. Census Bureau/CDC.gov

Changes in Mortality by Age Group

- 65–74 years—1.6 percent decrease
- 75–84 years—0.8 percent decrease
- 85 years and over—1.2 percent decrease
- http://www.cdc.gov/nchs/data/nvsr/nvsr61/nvsr61_06.pdf
- National Vital Statistics Reports, Vol. 61, No. 6, October 10, 2012

Number of people age 65 and over, by age group, selected years 1900–2006 and projected 2010–2050



Note: Data for 2010–2050 are projections of the population.

Reference population: These data refer to the resident population.

Source: U.S. Census Bureau, Decennial Census, Population Estimates and Projections.

What is Pain?

- Pain is an unpleasant sensory and emotional experience.
- The International Association for the Study of Pain defines pain as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.”

- IASP website

Hix M.D. Pain Management in elderly patients, Journal of pharmacy Practice, 20:49-63, 2007

Waldman S. Chapter 22 Pain Management , Second Edition. 2011 Saunders

Acute vs. Chronic

- Acute Pain is often limited, warns of tissue damage.

  Often with signs of autonomic nervous system activation
- Chronic persistent (> 3 months) - pain no longer signals tissue damage.

  Autonomic signs are often absent.
- In general, acute pain has more associated anxiety, and chronic pain has more associated depression.

Mechanism of Pain Based on Pathophysiology

- Nociceptive pain: Results from stimulation of pain receptors.

  Somatic: damage to body tissue, well localized

  Visceral: from viscera, poorly localized, may have nausea
- Neuropathic pain: Results from dysfunctions or lesions in either the central or peripheral nervous systems.
- Mixed pain syndromes: multiple or unknown mechanisms (e.g. headaches, vasculitic syndromes).
- Psychogenic Pain: somatoform disorders, conversion reactions.

Age Related Changes:

- Reduction in number and function of peripheral nociceptive neurons.
- Sensory threshold for thermal and vibratory stimuli increase with age.
- Pain receptors: 50% decrease in Pacini's corpuscles,10%-30% decrease in Meissner's/Merkle's disks
- Diminished endogenous analgesic response (endorphins) in the older patients.

Geriatric medicine: An evidence based approach 4th edition 2003

Age Related Changes:

Peripheral nerves :

Myelinated nerves

- Decreased density
- Increase abnormal/degenerating fibers
- Slower conduction velocity

Unmyelinated nerves

- Decreased number of large fibers (1.2-1.6 mm
- No change in small fibers (0.4 mm)
- Substance P content decreased

Geriatric medicine: An evidence based approach 4th edition 2003

Age Related Changes:

Central nervous system

- Loss in dorsal horn neurons

  Altered endogenous inhibition, hyperalgesia

- Loss of neurons in cortex, midbrain, brainstem

  18% loss in thalamus

  Altered cerebral evoked responses

Decreased catacholamines, acetylcholine, GABA, serotonin

Endogenous opioids: mixed changes

Neuropeptides: no change

Geriatric medicine: An evidence based approach 4th edition 2003

Physiologic Changes Affecting Pharmacokinetics

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

Prevalence of Pain in Elderly

- 1 in 5 elderly have pain
- 18% above 65 are taking pain medications regularly
- One-fifth of adults 65 years and older said they had experienced pain in the past month that persisted for more than 24 hours.
- Almost three-fifths of adults 65 and older with pain said it had lasted for one year or more.
- Women report severely painful joints more often than men (10 percent versus 7 percent).

CDC's National Center for Health Statistics 2006,

Prevalence of Pain in Elderly

1. Community-dwelling older adults: 25–56%
2. Nursing home residents: 45–80%
3. Greater than 50% patients dying of a variety of illnesses, including cancer, COPD, CAD
4. 31% of women & 19% of men > 75 yrs report pain in 3 or more sites

AGS panel on persistent pain in older persons, JAGS 50:s205-s224, 2002.

Ferrell B A: Pain evaluation and management in the nursing homes, Ann Intern Med, 123(9):681-687,1992.

Minner D M et.al., Evidence based assessment and treatment of persistent pain in the community dwelling elderly receiving home health services: A pathway, Home health care management and practice 17:294-301,2005.

Dr Samuel Johnson

"Those who do not feel pain seldom think that it is felt.“

(1709 - 84)

English poet, writer



Affects of pain

- Quality of life far beyond the local region of injury
- Lack of intimate relationships, dependency, and loss increase loneliness
- Isolation and reduced independence
- Impaired Sleep
- Impaired Function

Deane G et.al., Overview of pain management in older persons. Clin Geriatr Med 24,185-201,2008.

- Risk of disability, inability to perform ordinary activities
- May be a form of “elder abuse”!

Perception of Pain

- Mental Health, Mood
- Cultural
- Beliefs
- Learned Responses
- Distractions

Reported Pain

- Factors that affect reported pain intensity based on the peripheral stimulus depends on:

- Arousal level
- Anxiety/Depression
- Attention/Distraction
- Expectation/Anticipation

- Waldman S. Chapter 22 Pain Management , Second Edition. 2011 Saunders

Challenges of Assessment in Older Adults

- Generational myths that having pain is “natural” with aging
- Fears about addiction to pain medications
- Sensory and cognitive impairments
- Under-reporting
- Reporting base on caregiver’s interpretation

Stein, W.M. Pain in the nursing home. Clinics in Geriatric Medicine 17, 575-94,2001
Stewart, K. et. al. Assessment approaches for older people receiving social care: content and coverage. International Journal of Geriatric Psychiatry 14, 147-56,1999.
Horgas, A.L. et. al. Pain in nursing home residents. Comparison of residents' self-report and nursing assistants' perceptions. Journal of Gerontological Nursing 27, 44-53, 2001.
Weiner, D., et. al. Chronic pain associated behaviours in the nursing home: resident versus caregiver perceptions. Pain 80, 577-88,1999.

Challenges for Older Adults

- Older adults have more difficulty using self-report scales correctly than younger adults.
- Increasing age associated with difficulties in abstract thinking, which makes it more difficult to use scales requiring this cognitive skill.

- Gagliese L, Melzack R. Chronic pain in elderly people. Pain. 1997;70:3–14. doi: 10.1016/S0304-3959(96)03266-6.

Assess the Person

That we will ever be able to evaluate pain without reliance on the individual's perceptions is highly unlikely.

D.C. Turk Assess the person, not just the pain *Pain Clin Updates* 1 (1993)



Assessing the Person

Components

- History: temporal features, intensity, topography, quality, exacerbating/alleviating factors, Social, Psychological factors
- Physical Exam: determine existence of underlying pathology
- Lab and Radiographic Tests: appropriate to pain syndrome

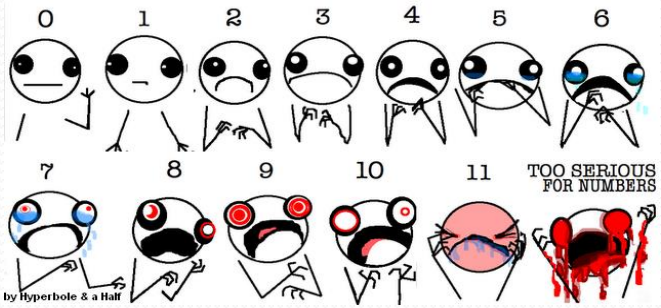
Pain Assessment Tools

Pain Assessment

Single Dimension scales and Ranges

Advantages: Easy to ask and get a result, minimal time, reproducible

Disadvantages: Subjective, requires some common level of understanding and communication. No cultural translation. Directs the patient to focus on their pain.



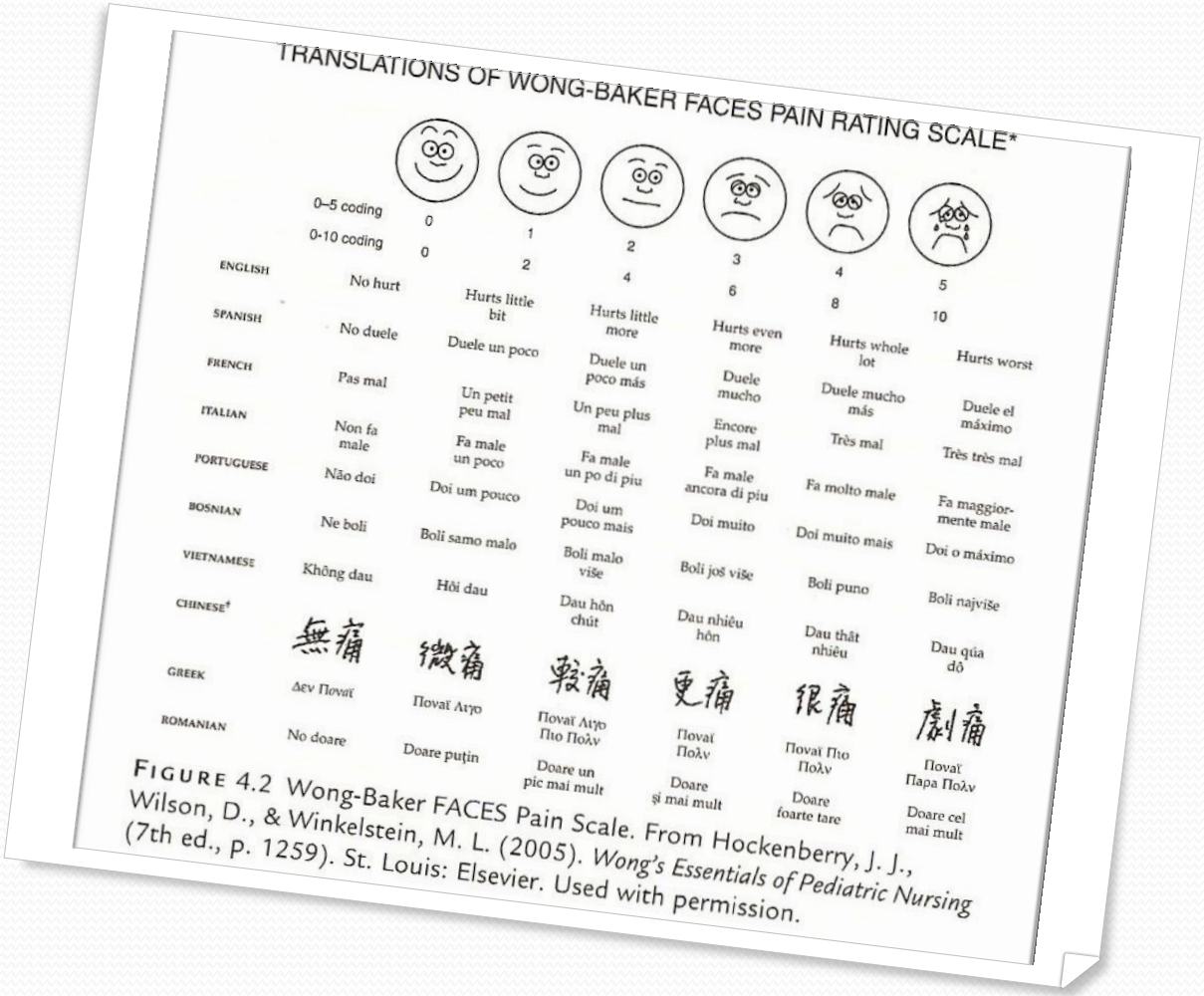
Translated Pain Scales

Faces

Thermometer

1 – 10

There are many.



TRANSLATIONS OF WONG-BAKER FACES PAIN RATING SCALE*

	0–5 coding	0	1	2	3	4	5
	0-10 coding	0	2	4	6	8	10
ENGLISH	No hurt	Hurts little bit	Hurts little more	Hurts even more	Hurts whole lot	Hurts worst	
SPANISH	No duele	Duele un poco	Duele un poco más	Duele mucho	Duele mucho más	Duele el máximo	
FRENCH	Pas mal	Un petit peu mal	Un peu plus mal	Encore plus mal	Très mal	Très très mal	
ITALIAN	Non fa male	Fa male un poco	Fa male un po di piu	Fa male ancora di piu	Fa molto male	Fa maggior-mente male	
PORTUGUESE	Não doi	Doi um pouco	Doi um pouco mais	Doi muito	Doi muito mais	Doi o máximo	
BOSNIAN	Ne boli	Boli samo malo	Boli malo više	Boli još više	Boli puno	Boli najviše	
VIETNAMESE	Không dau	Hôi dau	Dau hôn chút	Dau nhiêu hôn	Dau thât nhiêu	Dau qúa dô	
CHINESE†	無痛	微痛	較痛	更痛	很痛	劇痛	
GREEK	Δεν Πονaï	Πονaï Λιγο	Πονaï Λιγο Πιο Πολν	Πονaï Πολν	Πονaï Πιο Πολν	Πονaï Παρα Πολν	
ROMANIAN	No doare	Doare puţin	Doare un pic mai mult	Doare şi mai mult	Doare foarte tare	Doare cel mai mult	

FIGURE 4.2 Wong-Baker FACES Pain Scale. From Hockenberry, J. J., Wilson, D., & Winkelstein, M. L. (2005). *Wong's Essentials of Pediatric Nursing* (7th ed., p. 1259). St. Louis: Elsevier. Used with permission.

Pain Assessment Scales

Multidimensional scales evaluate pain in multiple domains (McGill Pain Questionnaire).

Advantage: looks at pain in terms of intensity, affect, sensation, location, and several other domains that are not evaluable with a single question.

Disadvantage: long, time consuming and difficult to administer.

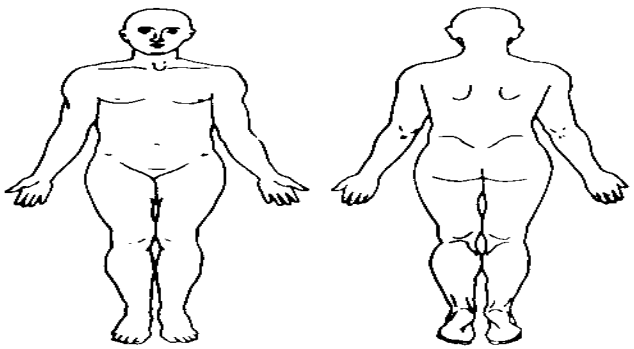
Elderly people living in institutions are unable to understand and answer even simple yes/no questions.

McGill Pain Questionnaire

Patient's Name _____ Date _____ Time _____ am/pm

PRI: S _____ (1–10) A _____ (11–15) E _____ (16) M _____ (17–20) PRI(T) _____ (1–20) PPI _____

1 FLICKERING	11 TIRING	BRIEF
QUIVERING	EXHAUSTING	MOMENTARY
PULSING	12 SICKENING	TRANSIENT
THROBBING	SUFFOCATING	RHYTHMIC
BEATING	13 FEARFUL	PERIODIC
POUNDING	FRIGHTFUL	INTERMITTENT
2 JUMPING	TERRIFYING	CONTINUOUS
FLASHING	14 PUNISHING	STEADY
SHOOTING	GRUELLING	CONSTANT
3 PRICKING	CRUEL	
BORING	VICIOUS	
DRILLING	KILLING	
STABBING	15 WRETCHED	
LANCINATING	BLINDING	
4 SHARP	16 ANNOYING	
CUTTING	TROUBLESOME	
LACERATING	MISERABLE	
5 PINCHING	INTENSE	
PRESSING	UNBEARABLE	
GNAWING	17 SPREADING	
CRAMPING	RADIATING	
CRUSHING	PENETRATING	
6 TUGGING	PIERCING	
PULLING	18 TIGHT	
WRENCHING	NUMB	
7 HOT	DRAWING	
BURNING	SQUEEZING	
SCALDING	TEARING	
SEARING	19 COOL	
8 TINGLING	COLD	
ITCHY	FREEZING	
SMARTING	20 NAGGING	
STINGING	NAUSEATING	
9 DULL	AGONIZING	
SORE	DREADFUL	
HURTING	TORTURING	
ACHING		
HEAVY	PPI	
10 TENDER	0 NO PAIN	
TAUT	1 MILD	
RASPING	2 DISCOMFORTING	
SPLITTING	3 DISTRESSING	
	4 HORRIBLE	
	5 EXCRUCIATING	



E = EXTERNAL
I = INTERNAL

COMMENTS:

FIG. 2. McGill Pain Questionnaire. The descriptors fall into four major groups: sensory, 1 to 10; affective, 11 to 15; evaluative, 16; and miscellaneous, 17 to 20. The rank value for each descriptor is based on its position in the word set. The sum of the rank values is the pain rating index (PRI). The present pain intensity (PPI) is based on a scale of 0 to 5. Copyright 1970 Ronald Melzack.

Challenges in NH Residents

20–30% of nursing home residents cannot adequately communicate their needs.

More than 50% of US nursing home residents have substantial cognitive impairment or dementia.

Common behaviors associated with pain may be absent or difficult to interpret.

Cohen-Mansfield J, Creedon M. Nursing staff members' perceptions of pain indicators in persons with severe dementia. The Clinical Journal of Pain. 2002;8:64–73.

Assessment in Dementia

The Pain Assessment in Advanced Dementia (PAINAD) scale

- Assess breathing independent of vocalization
- Negative vocalization
- Facial expression
- Body language
- Consolability

Each behavior is scored 0 to 2,higher the score more severe the pain.

Assessment in the Nonverbal

Checklist of Nonverbal Pain Indicators (CNPI):

- Nonverbal vocal complaints (sighs, gasps, moans, groans, cries)
- Facial grimacing
- Bracing (clutching or holding onto furniture, equipment)
- Rubbing (massaging affected area)
- Restlessness
- Verbal vocal complaints such as “ouch” or “stop”

Feldt K S., Pain Manag Nurs 1(1):13-21,2000.

Pain Assessment Tools

- Discomfort Scale - Dementia of the Alzheimer's Types (DS-DAT) Hurley A et al.)
- Dolophus 2 (Wary B)
- Elderly Pain Caring Assessment 2 (EPCA 2) (Morello R et al.)
- Mobilization-Observation-Behavioral -Dementia Pain Scale (MOBID) (Husebo BS et al.)
- Nursing Assistant Administered Instrument to Assess Pain in Demented Individuals (NOPPAIN)
- (Snow AL et al)
- Pain assessment checklist for seniors with limited ability to communicate (PACSLAC) (Fuchs-
- Lacelle SK et al.)
- Pain assessment in advanced dementia (PAINAD) (Warden V et al.)
- Pain Assessment in Non-communicative Elderly Persons (PAINE) (Cohen-Mansfield J et al.)
- Pain assessment tool in confused older adults (PATCOA)
- Pain Behavior for Osteoarthritis Instrument for Cognitively Impaired Elders (PBOICIE) (Tsai P et
- al.)

Treatment

"Basically, I'm for anything that gets you through the night - be it prayer, tranquilizers or a bottle of Jack Daniels."
Frank Sinatra



Challenges of Pain Treatment in Geriatrics

- The healthy to hospice span.
- A healthy retiree is no longer an individual who decreases their lifestyle activities.
- The "baby-boomers" in their 60s and 70s are "baby zoomers"; they have a functional active lifestyle.
- The older old 80's to 90's are diverse. Functional ability, living situation, social support, restricted finances should be considered.

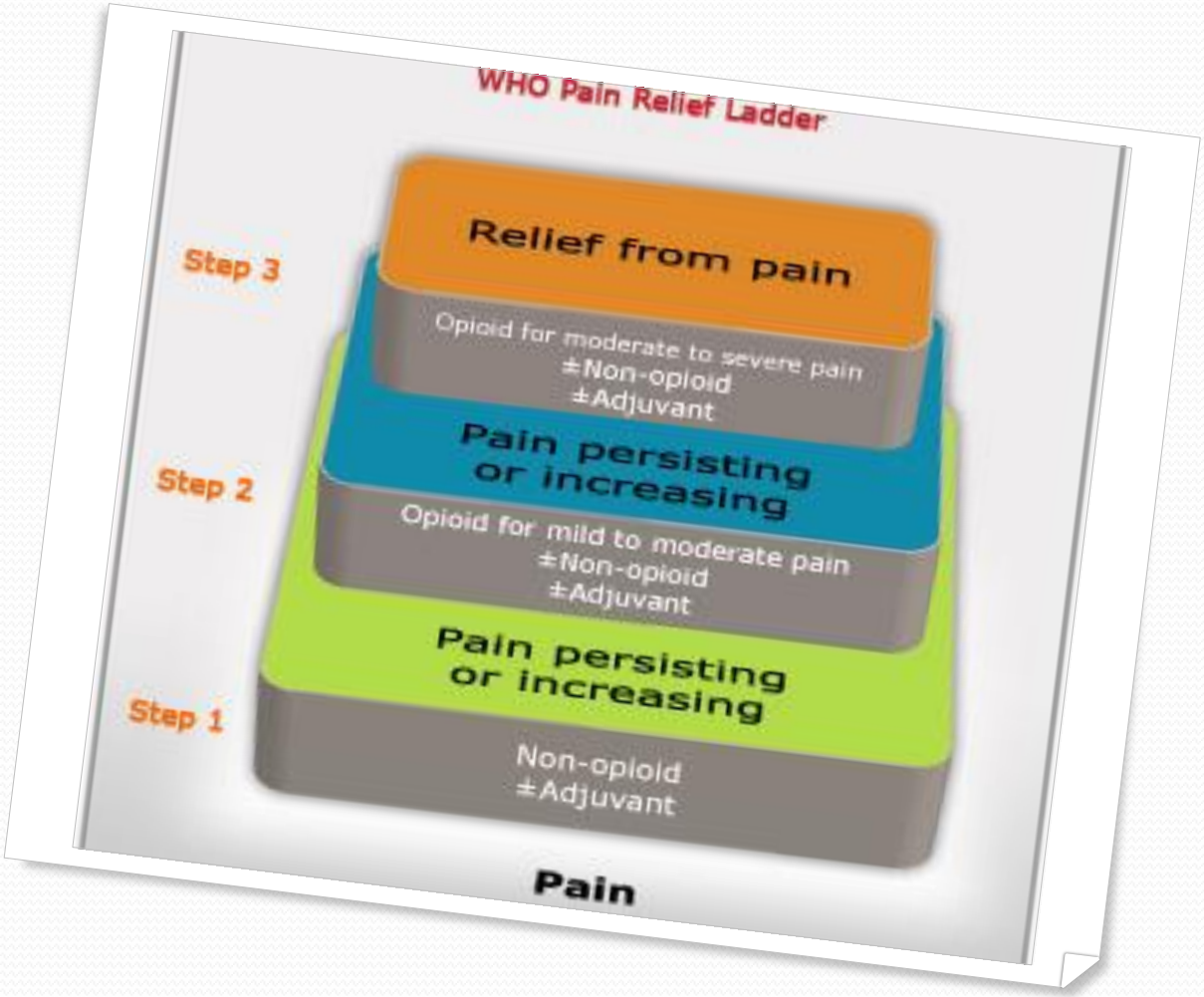
WHO Pain Ladder

Does not have to proceed step wise.

Step 1 – Mild Pain

Step 2 –Moderate Pain

Step 3 –Severe Pain



Therapy Options

- Pharmacotherapy
- Rehabilitative Approaches
- Psychologic Interventions
- Anesthesiological Approaches
- Neurostimulatory Techniques
- Surgery
- Complementary/Alternative Approaches
- Lifestyle Changes

Treatment Selection

Short-Acting Opioids

- Hydrocodone/APAP
- Hydromorphone
- Morphine
- Oxycodone w or w/o APAP
- Oral transmucosal fentanyl
- Tramadol
- Ketamine

Long-Acting Opioids

- Transdermal Fentanyl
- Methadone
- Extended-release morphine
- Oxycodone CR
- Hydromorphone ER
- Buprenorphine TDS

Treatment

Nonopioid Analgesics for Older Adults

- Acetaminophen:

1)Treatment of choice for Osteoarthritis

2)Exhibits an analgesic ceiling beyond which higher doses do not provide greater pain relief.

3) Maximum dose 3g in elderly, some advocate no more than 2g. A 50-75% reduction in daily maximum for those with hepatic insufficiency or ETOHuse.

American Geriatrics Society (2009). Pharmacological management of persistent pain in older persons. Journal of the American Geriatrics Society, 57(8), 1331-1346.

Treatment

- Nonselective NSAIDs

Use with caution in patients with renal insufficiency, congestive heart failure or volume overload

Significant dose-related, age related risks:

CV, renal, hematologic, GI, other organ systems

Older patients are at increased risk of AEs

Drug-induced adverse events may lead to adding more drugs - "The prescribing cascade" Pergolizzi J et al. Pain Practice 2010:3;201-213

- Selective COX-2 inhibitors (celecoxib)

Elderly are at increased risk for stomach bleeding and ulcers with NSAIDs.

NSAID – Risks in Older Adults

- GI toxicity especially among ≥ 75 years; similar to risk of patients with peptic ulcer
- 1.7 x more likely to require antihypertensive therapy vs. younger patients
- 10 fold increase in risk of falls
- NSAIDs and COX-2 inhibitors should be considered rarely, and with extreme caution
- Topical NSAIDs less sever GI Aes, discontinuation rates same as oral NSAIDs. 17% systemic s/e

- Stillman MJ, Stillman MT. choosing nonselective NSAIDs and selective COX-2 inhibitors in the elderly. Geriatrics. 2007; 62:26-34
- Walker,PC, Alrawi A, Mitchell JF et al Medication use as a risk factor for falls among hospitalized elderly patients. Am J Health Syst Pharm. 2005 Dec 1;62(23):2495-9.
- Hageman, J, van den Bernt, BJ, Duysens J van Limbood J. NSAIDs and the risk of accidental falls in the elderly: a systematic review. Drug Saf. 2009;32(6):489-98.
- Ickowicz et al. Pharmacological Management of Persistent Pain in Older Persons.American Geriatrics Society Panel on the Pharmacological Management of Persistent Pain in Older PersonsAUGUST 2009–VOL. 57, NO. 8 JAGS

Treatment with Opioids

- Opioid drugs have no ceiling to their analgesic effects and have been shown to relieve all types of pain.
- Elderly people, compared to younger people, may be more sensitive to the analgesic properties.
- Advanced age is associated with a prolonged half-life and prolonged pharmacokinetics of opioid drugs
- Compared to NSAIDS opioids in older adults with arthritis increased the risk of fractures, safety events requiring hospitalization, and mortality.

- Solomon DH, Rassen JA, Glynn RJ, et al. The comparative safety of analgesics in older adults with arthritis. Arch Intern Med. 2010;170:1968-1978

Opioids

- Morphine

  Hepatic metabolism and renally excreted; not dialyzable.

  Oral bioavailability 30-40%,

  M6G is active metabolite with analgesic activity,

  M3G is another metabolite causes neurotoxicity,

  Morphine is available in oral (liquid and pill), topical, sublingual, parenteral, intrathecal, epidural and rectal routes.

  High doses can lead to myoclonus and hyperalgesia.

Opioids

Oxycodone

- Only available in oral form
- More potent than morphine
- Available as single agent and in combination with NSAIDs and acetamenophen
- Available in long-tacting, slow release form – OxyContin)

Methandone

- Blocks NMDA receptors, inexpensive, lacks active metabolite
- Used for neuropathic pain
- Variable(long) half-life, high tissue distribution,
- Converting from any opioid to methadone takes several days

Opioids

- Hydrocodone (Vicodin, Lortab, Norco, others)

  Only available in combination with acetaminophen or NSAID
- Hydromorphone (Dilaudid)

  5 times more potent than morphine

  Now available in long acting preparation
- Propoxyphene (darvocet)

  very weak analgesic effect, can cause ataxia and neurotoxicity, twofold higher risk of hip fractures.

Opioids

- Most oral opioids (except methadone) have a duration of action of 3-4 hours with normal metabolism.
- For all opioids (except buprenorphine (Suboxone, subutex, Butrans)), half-life of the active drug and metabolites is increased in the elderly and in patients with renal dysfunction.
- J Pain Res. 2009; 2: 117–134. Transdermal buprenorphine – a critical appraisal of its role in pain management

Opioids

- Buprenorphine, a potent centrally acting opioid analgesic.
- Eliminated via the GI tract (two-thirds), feces contains unchanged buprenorphine, and a lesser extent via the urine (1/3), which contains conjugates of the Buprenorphine and norbuprenorphine.

Opioids

Fentanyl Patch

- 100 times more potent than morphine
- Absorption altered by temperature,
- Depot of drug in excess adipose tissue

Tramadol

- Synthetic mu (opioid) agonist and inhibition of serotonin and norepinephrine reuptake
- 1/5th as potent as morphine
- Lowers threshold for seizure and multiple drug-grug interactions.

Opioids

- Can cause drowsiness, nausea, respiratory depression.
- Tolerance: diminished effect of a drug associated with constant exposure to the drug over time.
- Tolerance develops to CNS side effects.
- Tolerance **does not** develop to constipation!

  (Prophylax with increasing fluid intake, osmotic laxatives or stimulant laxatives)
- Dependency: uncomfortable side effects when the drug is withheld abruptly.
- Drug dependence requires constant exposure to the drug for at least several days.

Adjuvants

CLASS	EXAMPLES
Anticonvulsants	gabapentin, valproate, phenytoin, carbamazepine, clonazepam, topiramate, lamotrigine
Antidepressants	amitriptyline, desipramine, nortriptyline, paroxetine, citalopram, others
Local Anesthetics	mexiletine
Corticosteroids	dexamethasone, prednisone
α-2 Adrenergic Agonists	tizanidine, clonidine
NMDA-Receptor Antagonist	dextromethorphan, ketamine
Topicals	lidocaine, lidocaine/prilocaine, capsaicin
Miscellaneous	baclofen, calcitonin

Challenges of Adjuvants

- Tricyclic antidepressants (amytriptyline, desipramine) for neuropathic pain, depression, sleep disturbance. Not used often due to side-effects.
- SSRI/atypical antidepressants better tolerated.
- Analgesic doses for tricyclics is usually less than the antidepressant dose.
- TCAs can cause orthostatic hypotension and may aggravate confusion.
- Both TCAs and SSRIs increase falls risk in elderly.

- Thapa PB, Gideon P, Cost TW, et. al. Antidepressants and the risk of falls among nursing home residents. New England Journal of Medicine, 1998; 339:875-82.

NMDA Antagonist Challenges

- N-methyl-D-aspartate receptor involved in neuropathic pain
  - Ketamine: dissociative anesthetic; can be used p.o. or IV/SC infusion, Emergence Delirium with confusion, excitement, and irrational behavior more common in elderly.
  - Usual starting dosage in ketamine-naive patients is 0.5 mg/kg racemic ketamine or 0.25 mg/kg S-ketamine as a single oral dose. Can be given 3-4 times daily.
  - Eur J Pain. 2010 May;14(5):466-72. doi: 10.1016/j.ejpain.2009.09.005. Epub 2009 Oct 29.
  - Active metabolite norketamine. Parenteral to Oral dose similar.
  - Dextromethorphan: antitussive; starting dose 120 mg/day; maximum daily dosage one gram

Non-opioid treatment

- Massage reduces pain, including release of muscle tension, improved circulation, increased joint mobility, and decreased anxiety
- TENS unit: Can be considered for diabetic neuropathy but not for chronic low back pain

Non-drug treatment

- Education: basic knowledge about pain (diagnosis, treatment, complications, and prognosis), other available treatment options, and information about over-the-counter medications and self-help strategies.
- Exercise: tailored for individual patient needs and lifestyle; moderate-intensity exercise, 30 min or more 3-4 times a week and continued indefinitely.
- Physical modalities (heat, cold, and massage)

  Cold for acute injuries in first 48 hours, to decrease bleeding or hematoma formation, edema, and chronic back pain. Heat works well for relief of muscle aches and abdominal cramping.

Non-drug treatment

- Physical or occupational therapy; should be conducted by a trained therapist
- Chiropractic: Effective for acute back pain. Potential spinal cord or nerve root impingement should be ruled out before any spinal manipulation
- Acupuncture: Performed by qualified acupuncturist. Effects may be short lived and require repetitive treatments

Non-drug treatments

- Relaxation: repetitive focus on sound, sensation, muscle tension, inattention towards intrusive thoughts. Requires individual acceptance and substantial training.

  Meditation: Guided or self-directed technique for calming the mind, allows thoughts, emotions and sensations to travel through conscious awareness without judgment.

  Progressive muscle relaxation: Individual tensing and relaxing of certain muscle groups.
- Hypnosis: effective analgesic, state of inner absorption and focused attention. Reduces pain by distraction, altered pain perception, increased pain threshold.

Norelli L J et.al., : Behavioral approaches to pain management in the elderly, 24(2), Clinics in Geriatric Medicine, 2008.

Non-drug treatment

- Cognitive-behavioral therapy: Pain is influenced by cognition, affect and behavior.

  Conducted by a trained therapist, focuses on changing individual cognitive activity to modify associated behavior, thoughts, and emotions.

  10-12 weekly individual or group sessions

  Participants have to be cognitively intact
- Operant behavior therapy: Use of negative and positive consequences to modify the behaviors.
- Mind-body conditioning practices: Yoga, tai chi, qigong.

Norelli L J, et.al.,: Behavioral approaches to pain management in the elderly, 24(2), Clinics in Geriatric Medicine, 2008.

Consequences of untreated pain

- Impaired function: Pain can lead to decreased activity and ambulation leading to de-conditioning, gait disturbances and injuries from falls.
- Sleep deprivation: decrease pain thresholds, limit the amount of daytime energy, increased risk of depression and mood disturbances.
- Increases financial and care giving burdens placed on families and friends by increased utilization of health care services.
- Diminished quality of life by isolating individuals from important social stimulation, amplifying the functional and emotional losses already experienced from undertreated pain.

Jakobsson, U. et.al., Old people in pain: A comparative study. *Journal of Pain and Symptom Management*, 26, 625-636,2003.
Weiner, D.K., et.al., Pain in nursing home residents; management strategies. *Drugs and Aging, 18(1)*, 13-19,2001.

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