

Chronic Pain in Cognitively Impaired Elderly: Challenges in Assessment, Diagnosis, and Treatment

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Abstract

One of the greatest challenges facing health care today is the provision of proper pain management in elderly patients suffering from both acute and chronic pain. The task of caring for suffering individuals is magnified when those patients are inflicted with cognitive impairments. Approximately 4 ½ million Americans suffer from Alzheimer's disease and it is estimated that around 14 million will have the disease by the year 2050 if a cure is not found. With the possible exception of depression, the mental disorder constituting the greatest health problem in the older age group is organic brain syndrome of varying etiology and severity. Elders with dementing illness receive fewer pain medications and interventions aimed at relieving discomfort than those elders without brain syndromes. The purpose of this paper is to provide information regarding the enormity of the problem, discuss assessment tools available for use when identifying the pain in this group, list usual and unusual manifestations of pain in patients with dementia, identify the most common differential diagnosis causing pain symptoms and suggest treatment methodologies for treating pain in this special population.

Introduction

One of the greatest challenges facing healthcare today is the provision of proper pain management in elderly patients suffering from acute and/or chronic pain. This vital component of medical care becomes even more difficult when those elders are also dealing with cognitive impairments in addition to their pain. It is important that professional and lay caregivers learn as much as they can about assessment and treatment of pain and examine their own feelings and prejudices towards pain management. Pain is not normal and pain management needs to be a priority in the care of this vulnerable population.

The American Geriatric Society (AGS) Panel on Chronic Pain in Older Persons gathered statistics from examining multiple studies and summarized the data in an article originally published in 1990, again in 1998, and in 2002. The findings of their work highlight the following information: 25-50% of community-based elders have pain, up to 85% of residents in long-term care report pain, and from 45-80% of that pain is under

treated. Seventy-five percent of hospitalized medical patients say pain was excruciating. When PRN (as needed) opioid medications are ordered for postoperative patients, more than half of them have unrelieved pain due to under treatment. One in five older Americans are taking analgesic medications regularly (several times a week or more), and 63 percent of those had taken prescription pain medication for more than six months. Older persons are more likely to suffer from arthritis, bone and joint disorders, back problems, and many other painful chronic conditions.¹

It is interesting to note, that only 1% of the 4,000 articles on pain published annually and listed in the National Library of Medicine database Medline, are related to pain management in older persons.⁶ Despite the prevalence of pain among older adults, pain is inadequately recognized, therefore under treated, especially in those with severe cognitive impairment. Studies demonstrate that older adults with cognitive impairment receive less pain medication than their counterparts who are able to communicate.² Horgan and Tsai³ examined a sample of 339 (295 women and 44 men) nursing home residents with a mean age of 87 years old (range 66-104). Forty-six percent of the sample had diagnosed cognitive impairment, and 55% had at least one painful condition. The results indicated that cognitively impaired nursing home residents are prescribed and administered significantly less analgesic medication, both in number and in dosage of pain drugs than their more cognitively intact peers. After analysis, it was found that the more disoriented and withdrawn the resident, the less analgesics prescribed by physicians and the less analgesia administered by nursing staff.³

Unrelieved pain can have serious consequences on the quality of life of an older person. Unrelieved pain has been associated with altered immune function, depression,

anxiety, and fear, impaired physical function, especially in regards to mobility, gait disturbances and malnutrition. The likelihood of falls and delayed rehabilitation after surgery is common in patients with uncontrolled pain. In addition, sleep disturbance is common. Compromise of cognitive function occurs from the pain itself, the etiological cause for the pain, and/or the pain medications used to treat the condition. Isolation, decreased socialization, financial hardships, increased dependency, and helplessness all contribute to the burden of unresolved pain.^{2,3}

Other negative consequences to unrelieved pain include: increased stress, increased metabolic rate, increased blood clotting, increased water retention, delayed healing, slowed gastrointestinal motility, impaired immune function and unnecessary suffering.⁴ The psychological consequences of painful chronic illnesses are powerlessness, hopelessness and depression.⁴ Dellasega quotes the Agency for Health Care Policy and Research by saying, “that the management of pain is not just appropriate clinical intervention—it is a moral mandate. The ethical obligation to manage pain and relieve the person’s suffering is at the core of the health care professional’s commitment.”⁴

There is a close relationship between pain and depression in the elderly. Ferrell has done numerous studies of pain amongst nursing home residents. He found that there was a “decrease in engaging in enjoyable activities, a decrease in ambulation, impaired posture, sleep disturbance, anxiety, and impaired appetite in nursing home residents who had pain.”⁵

Definition of Pain

Pain is a very personal and subjective experience affected by many factors. There are no biological markers to identify pain. A person's experience with pain plays a role on how it is perceived. In addition to this, personality, thinking ability, cultural background, and prior emotional status along with coping mechanisms all determine the pain experience. It is also important to factor in the type of pain it is, whether it be acute or chronic unrelenting pain. Age may also play a role in pain interpretation.

The International Association for the Study of Pain gives this definition of Pain: "Pain is an unpleasant sensory and emotional experience associated with potential tissue damage".¹ Many authors, researchers, and pain experts believe that "pain" is whatever the person experiencing it says it is. Therefore, the most accurate evidence of pain and its intensity is based on the patient's description and self-report. Reliance on self-reporting presents unique challenges in managing painful conditions in older adults with cognitive impairment.

Classification of Pain

Pain may be described in terms of its duration and anatomical origin. The following terminology is important for any health care provider to understand.

Acute pain: usually of sudden onset, short-lived, or transient. It is characterized by obvious pathology and usually lasts under 3 months. It is associated with autonomic responses such as tachycardia, change in blood pressure (up or down), diaphoresis, and pupillary changes.⁴ Acute pain may signal a serious underlying pathology or may be caused by exacerbation of a chronic problem (i.e., a vertebral fracture in a person with osteoporosis). Acute pain may also be caused from a new injury after a recent fall or

from surgery, procedures, acute infection or inflammatory processes. This type of pain usually responds well to medications.⁷

Chronic pain: is a constant pain or of long duration; often accompanied by depression especially if pain is poorly managed. Chronic pain may be persistent, intermittent, cyclical, and may not respond to usual treatments. This pain often exists beyond an expected time frame for healing and in many instances healing may never occur. This type of pain serves no benefit for the patient and may become so severe it causes serious dysfunction. The pain itself becomes the disease. Compared with acute pain patients, chronic pain patients have reported more pain sites, a larger number of pain descriptors, a greater medication use, and a lower degree of pain intensity and disability reduction during therapy.⁹

Breakthrough pain: is a transient flare of pain over baseline pain. It must be distinguished from uncontrolled pain in which the baseline effects are unacceptably high.

Baseline pain: is defined as that experienced by the patient for more than 12 hours per day.

Nociceptive pain: is either in the visceral organ system or somatic and is caused by stimulation of pain receptors. This usually occurs through tissue injury or mechanical deformation. Examples include pain from arthritic conditions and mechanical back pain such as from scoliosis. Often times the pain is proportional to the amount of injury experienced. All bodily tissues may experience this kind of pain except when the pain occurs in the central nervous system. Common analgesics and non-pharmacological strategies are useful in treating nociceptive pain.

Neuropathic pain: involves damage to either the central or peripheral nervous system. Neuropathic pain is often described as “burning”, “aching”, or “deep” in quality. Examples include post stroke pain, phantom limb pain, trigeminal neuralgia, or painful extremities from diabetic neuropathy. Another common cause in the elderly is post herpetic neuralgia after an outbreak of shingles or herpes zoster. Ongoing tissue damage may be absent although the pain may persist. This type of pain often does not respond to conventional analgesics.

Psychogenic pain: occurs when psychological influences are a major factor in the etiology or persistence of the pain symptoms. Examples of these are somatization or conversion disorder. Psychiatric intervention is necessary. Note, this type of pain is very rare in the elderly, especially those residing in long-term care facilities.⁷

Barriers to Effective Pain Management

There are multiple barriers to effective pain management and they can be separated into 3 major categories. They include: patient barriers, healthcare professionals as barriers, and healthcare systems as barriers. The following list of items is not exhaustive of all obstacles preventing quality pain management interventions.

Patients as Barriers-

1. There is a perception that pain is a normal part of aging.
2. The elderly are sometimes stoic when experiencing pain.
3. Complaining of pain represents a moral failure.
4. The patient may fear the cause of pain (i.e., cancer).
5. There may be a lack of awareness that pain can be managed.
6. Patients fear that the use of narcotics may lead to addiction.

7. There may be a fear of perception that analgesic narcotics will lead to mental confusion, disorientation, and personality changes.
8. Patients may fail to report pain because of the desire to be “good patients” and not distract the physician or nurse practitioner from the primary task of treating the disease.
9. A patient sometimes under-reports pain because increasing pain suggests the disease is progressing.
10. Cognitive losses impair a person’s ability to process and express the pain experience.

Healthcare Professionals as Barriers-

11. Healthcare professionals often lack the knowledge and understanding about the physiology of pain.
12. They also often have a knowledge deficit about the clinical pharmacology of narcotic analgesics.
13. There is a lack of understanding and knowledge of new methods of pain relief including the use of adjunct drugs and neurosurgical procedures.
14. There are insufficient educational offerings and dissemination of up-to-date information about pain management. Most medical and nursing schools are sorely lacking in pain content in the curriculum.
15. There is confusion about the difference between physical dependence and addiction.
16. There is excessive concern about the development of tolerance and addiction to narcotic analgesics.

17. Management of side effects of narcotic analgesics may be too challenging for some practitioners.
18. Providers may not trust patient judgment concerning the severity of their pain.
19. Some providers believe that pain must be moderate to severe in intensity before prescribing pain relief.
20. Pain management is low on the list for some providers.
21. Healthcare providers perceive pain management as difficult and frustrating, therefore often avoid it.

Health Care Systems as Barriers-

22. Hospitals lack accountability for pain management because they operate on an “acute care”, disease oriented model.
23. There is a lack of coordination of care as a patient moves through the health care continuum. Pain management gets lost in the shuffle.
24. There is no follow-up or contact with patients who return home.
25. There can be a fragmentation of care due to consultation with multiple specialists giving many pieces of information and opinions to patients and families.
26. Multiple providers may be prescribing pain medicine with no knowledge of anyone else prescribing the same or different pain pills.
27. In urban areas there may be unwillingness to stock narcotics because of the risk of theft.
28. In rural areas, resources such as pain experts and pain relieving neurosurgical procedures are not available.^{7, 10, 12}

Assessment of Pain in Older Persons

A thorough initial assessment of pain is critical to understanding the causes of pain in the older adult. Assessment is the first step in the process to adequate treatment of painful conditions in elders. It is critical to differentiate acute pain from chronic pain and to distinguish the difference between new pain or exacerbations of chronic pain. There may be a reluctance to talk about pain because of the preceding list of patient barriers. Patients who are cognitively impaired slightly underreport pain particularly when the cognitive impairment increases in severity.⁸ In a cross-sectional study of 36 patients with acute pain and 55 patients with chronic nonmalignant pain, Schuler found that geriatric in-patients with chronic pain differ from acute pain patients in pain description, pain reduction during treatment, use of analgesics, and emotional distress. Cognitive impairment seems to change the ability to localize acute pain. He found that the perception of pain intensity was independent of cognition.⁹

Cognitive impairment is defined as a diagnosis of dementia or a score on the mini-mental state examination of 23 or less.¹⁷ Approximately 4 ½ million Americans suffer from Alzheimer's disease, one of the illnesses causing cognitive impairments. It is estimated that around 14 million will have the disease by the year 2050 if a cure is not found. With the possible exception of depression, the mental disorder constituting the greatest health problem in the older age group is organic brain syndrome of varying etiology and severity. While the term "organic brain syndrome" is somewhat outdated, the reader needs to be aware that there is a group of mental disorders, including Alzheimer's disease, which exhibit similar characteristics and are caused by an organic or physiological origin.¹⁸

Alzheimer's disease (AD) accounts for more than one-half of all victims of organically caused memory loss and brain cell impairment. Half of all nursing home patients suffer from AD or a related disorder. A person with AD can live from three to twenty years or more from the onset of the symptoms. Seven out of ten people with Alzheimer's disease live at home. Family and friends provide most of the care, 75%, at home.¹⁸

Organic brain disorders have the following major distinctive features:

1. Disturbance and impairment of memory
2. Impairment of intellectual function or comprehension
3. Impairment of judgment
4. Impairment of orientation
5. Inability to carry out some or all activities of daily living¹⁸

Organic brain syndromes (OBS) are characterized by cell loss, brain cell dysfunction, or brain cell death. Another term commonly used for organic brain syndrome is "senile dementia". It refers to cognitive impairment occurring in old age. Memory loss occurs in quantities, which interfere with everyday life. There are a number of other diseases which cause cognitive decline. A few of them will be listed here; but will not be elaborated on due to the enormity of the subject. They are: Pick's disease, Multi-infarct dementia (or vascular dementia), Creutzfeldt-Jakob disease (CJD), Kuru, Huntington's Chorea, Parkinson's disease, brain tumors, Normal Pressure Hydrocephalus (NPH), Subdural Hematoma, and Multiple Sclerosis.

In the early stages, the person attempts to make adjustments to changes in cognition, especially if he/she has insight into what has happened to his intellectual

abilities. Such a person can function fairly adequately with the proper support systems. Memory changes are one of the most obvious symptoms of organic brain syndrome (OBS). Recent memory seems to decline at a faster rate than long-term memory. A factor in memory loss may be an emotional influence on recall capabilities. Older people also suffer numerous losses as they age. Elderly people may need to deny, to forget or to distort that which is overwhelming or too painful to face.

More easily noticed is disorientation. Confusion about the day, the hour, the year is the first symptom to occur in OBS. This is followed by a loss of the sense of place. Next the person loses the ability to recognize others, and lastly, he/she loses the remembrance of “who” he /she is. This disorder’s prime characteristic is its irreversibility. Once brain damage has occurred, there is no full return to its pre-damaged state. Disorientation, coupled with memory loss, make reporting and describing pain a challenge for this type of patient.

Assessment of pain in cognitively impaired older adults requires familiarity with the patients. Pain should be assumed when patients have a diagnosis which is painful in patients who can express themselves, and when patients have undergone surgery which is normally painful to patients who can express themselves. Pain should be considered when patients are not performing at their optimal level or are not doing what they usually do. Knowing your patient is everything when tackling the challenges of pain assessment and management. Confusion, disorientation, memory loss, poor judgment, sensory loss, and language loss interferes with a patient’s ability to impart helpful information to care providers.

It has been determined that pain in older adults is poorly assessed. Confused older adults are even less likely to have their pain identified when compared with those who have intact thinking and communication abilities. In an article written by Murdoch J. Larsen, he underwent an extensive literature search and found that physicians attending older patients in a nursing home identified chronic pain in 43 percent of the communicative group, and only 17% of the non-communicative group. This was despite no significant differences in age, sex and medical diagnoses between the two groups. Fewer members of the non-communicative group received analgesic medication compared with those of the communicative group.¹³ Another study completed by Horgas and Tsai, measured the relationship between cognitive impairment and analgesic dosage. They found that nursing home residents with cognitive diagnoses were prescribed approximately 32,983 mg acetaminophen equivalents and given approximately 2,871 mg acetaminophen equivalents in 1 week; those who were cognitively intact were prescribed approximately 44,341 mg and administered approximately 5,804 mg acetaminophen equivalents during the same time interval.³

A comprehensive pain assessment should include a medical history and physical examination, as well as a review of results of pertinent labs and other diagnostic tests. Often pain is not identified because nobody asked about it. Varieties of terms are synonymous with pain and should be used by the person obtaining the historical information. Examples of these terms include: burning, discomfort, achiness, soreness, heaviness, and tightness.¹ A primary goal of recording the sequence of events that led to the present pain complaints should be clearly established. If this portion of the process of pain management is done well, a definitive diagnosis and treatment plan will follow.

Initial evaluation should include a thorough analgesic medication history, including current and previously used prescription medications, over-the-counter medications and “natural” remedies. Effectiveness of previously used medications should be recorded and adverse drug reactions should be noted.¹ Pain evaluations should include descriptions of:

- intensity
- character
- frequency
- pattern
- location
- duration
- precipitating factors
- relieving factors
- impact of pain on mood and sleep

The physical exam should focus on the area of the body the pain resides in. Also the neurological system along with the musculoskeletal system should be examined. When looking at the neurological component of pain, consider the presence of exaggerated pain sensations, painful response to non-painful stimuli, numbness, and paresthesias. When examining the musculoskeletal system look for the presence of weakness, trigger points, inflammation, deformity, tenderness, radiation of pain, range of motion, and altered gait.¹ Functional ability should be assessed by asking about activities of daily living (ADLs) and independent activities of daily living (IADLs). See Table 1 for lists of functional activities to assess for.

<u>Activities of Daily Living</u>	<u>Independent Activities of Daily Living</u>
-bathing	-using the telephone
-dressing	-shopping
-toileting	-food preparation
-continence	-housekeeping
-feeding	-laundry
	-driving
	-taking medications
	-managing money

Table 1. Components of Functional Status

Evaluation of psychosocial function can be assessed by using tools such as: Depression rating scales (i.e., Beck's Depression Rating Scale) and mental status exams (i.e., Folstein Mini-Mental Examination). When you are examining a patient with impaired cognition, it is imperative that there is a family member or significant other present during the examination.

It is always optimum to utilize objective pain scales when determining the presence and severity of pain. Utilization of those tools should be tailored to the special needs of the patient. The numbers of valid and reliable pain scales is growing along with the growing body of research studies centered on pain scale use. Using standard pain scales can make quantitative pain determinations. Numeric rating scales are most common. A visual analog scale is similar to the numeric rating scale and seems to be valid and reliable. There is conflicting evidence as to whether pain perception in the elderly is decreased. There seems to be a weakness in verbal descriptor scales because there are a limited number of words to choose from to describe pain. An elder might choose a moderate word to describe their pain although the pain might be extreme.

Tools for measuring intensity of pain help to complete the assessment of patients experiencing pain. Research is generally inconclusive about which tool is best to use in

people with cognitive decline. Larsen cites studies supporting the conclusions that pain reports by older individuals with cognitive impairment are reliable and valid. Of those studied, 83% were capable of completing at least one of the available pain assessment tools and those unable to complete a tool was still able to identify the presence of pain in an answer to a direct question.¹³

Discussion of pain assessment tools and their use is necessary in order to help the provider become aware of available pain measuring instruments. It may become necessary to use a variety of measurement tools. Conditions are important when administering the pain questionnaires. These include: print size, optimum lighting, and waiting until the patient is rested if fatigued. Patients should be provided with clear instructions in a slow manner, with examples and waiting for a response. Instructions may be repeated. Patients can be provided opportunities for practice and demonstrate understanding of the tool. Patients may be shown a written example of the scale along with verbal instructions. Be sure to ask about pain being experienced in the present.²

The following are descriptions of some of the most commonly used pain assessment tools:

1. Visual Analog Scale (VAS)—

This tool was first used many years ago, in the 1960's. The scale is represented by a straight line measuring 100-mm. There are descriptive phrases at each end of the line indicating “no pain” to “severe pain” or “worst pain ever”. The line is marked by the patient. This scale has been found to be valid and reliable for younger and older patients.¹⁴

2. Verbal Descriptor Scale (VDS)—

This scale is easy to administer and applies to patients with either acute or chronic pain. This tool organizes numbers in an ordinal approach and the numbers describe different levels of pain. The numbers increase and are compared to increasing pain. Patients being reviewed are asked to choose words like none, mild, moderate, severe and unbearable and these are associated with numbers. The weakness of this tool is that the words may not necessarily express what the patient is experiencing, or may have different meanings from the interviewer's perspective.¹⁴

3. Faces Pain Scale—

This scale was originally developed in 1988 for pediatric populations. It incorporates facial expressions that represent degrees of pain to assess pain intensity. The faces display such emotion as smiling, frowning, and tears. It has been revised with more appropriate features for adult populations. This tool works well in cognitively intact patients; but research still is required to test its effectiveness in confused elders.¹⁴

4. Numeric Rating Scale—

This tool uses numbers ranging from 0-10 with 0 representing no pain and 10 signifying the worst pain. This is simple and quick to use.¹⁴

5. Philadelphia Pain Intensity Scale (PIS)—

This scale seems to be more useful than other pain assessment tools in assessing pain in cognitively impaired patients and can be used by nonprofessional caregivers in a community-based care setting. More cognitively impaired elders are able to complete it, it had the strongest correlation between what the patient expresses and how the caregiver rates the pain.¹⁶ In a study done by Kruleqitch, et al, 97% of caregivers were able to

complete it. The PIS continued to perform well when caregivers were still using it in cases of advanced dementia.¹⁶

There are other multidimensional scales including the McGill Pain Questionnaire, which is more complicated and time consuming to use. It has been shown to be reliable, valid and useful, but still need to be researched in special populations like those with declining brain function. Stolee et al, investigated 39 instruments for measuring pain and found that there were no instruments for which all major tests of reliability or validity were reported. Reliability and validity data were basic or unavailable for many instruments. They concluded that, “there is a need for further rigorous development and testing of pain instruments for use with cognitively impaired older persons”.¹⁵

The health care provider must be alert to the following important clinical signs of acute pain. They are:

- increased pulse, respirations, blood pressure
- diaphoresis
- visible facial expression of grimace or tension
- crying
- guarding
- restlessness
- immobility of body part
- fetal position^{1, 7, 11}

Clinical signs of chronic pain are more difficult to discern as they may or may not be present and could potentially describe a myriad of diseases. Some examples of these are:

- no change in vital signs, even with moderate to severe pain of long standing

- reports of sleepiness, depression, anxiety, inactivity
- increased confusion
- stoicism
- there may be no signs and symptoms of serious illness such as with : silent myocardial infarction, painless acute appendicitis, and pneumonia.^{7, 11}

Some studies demonstrate that there is no difference between the observed pain-related behaviors in the cognitively impaired and cognitively intact individuals.² It would be critical to establish the individual's typical or baseline pattern of behavior and activity so that new or unusual behaviors become more obvious. Observed behaviors correlated with self-report of pain and more pain-related behaviors were noted during movement than during rest.² This would indicate that it would be wise to assess for pain during activities, mobility, and ambulation. In cases where a patient cannot communicate using objective measurements, it is preferable to observe behaviors rather than not assess at all. Behavioral assessments can be used to assess for outcomes of intervention as well.

A Clinical Nurse Specialist in Gerontology at the Vancouver Hospital and Health Sciences Centre, Vancouver, British Columbia, Canada, named Amy McAuley developed a behavioral tool to help identify pain in cognitively impaired elderly. The guide was also used in individuals who temporarily had altered mental status or who were unable to communicate clearly. She died in 1996 and the tool was dedicated to her.⁸ The original tool is no longer in use, but is helpful to review in order to understand the many behavioral symptoms that may manifest in patients with cognitive impairments. "Amy's Guide" is as follows:

Amy's Guide⁸

Verbal Expressions:

1. Crying when touched
2. Hollering
3. Volume of voice increasing or becoming shrill
4. Becoming very quiet
5. Yelling or shouting
6. Swearing, calling names
7. Talking without making sense
8. Grunting

Facial Expressions:

1. Facial grimacing (e.g., wincing, having a painful look)
2. Closing their eyes
3. Wincing with touch
4. Having a worried Expression

Behavioral Expressions:

1. Jumping when you touch a particular spot
2. Increased confusion
3. Pointing with hand to a particular spot
4. Persistently wearing an item (e.g., slippers, hat)
5. Not wanting to eat
6. Forcing self back in chair or bed
7. Rocking, shaking, or experiencing tremors
8. Feeling grumpy
9. Becoming limp
10. Acting withdrawn
11. Becoming agitated, increased movement, feeling anxious or restless
12. Having a temper tantrum, throwing things
13. Pushing away or grabbing at you
14. Acting like a child
15. Experiencing decreased concentration (e.g., not fully there, forgetting easily)
16. Having difficulty settling down or experiencing sleep disruption
17. Hanging their heads, acting withdrawn or depressed, or having no expression
18. Seeking beds or increased sleeping

Physical Expressions:

1. Becoming cold
2. Becoming pale
3. Becoming clammy
4. Having a red or swollen body part
5. Changing of color
6. Increasing vital signs (in acute pain only)

The most accurate way to assess pain in the non-communicative elderly person may be to prescribe a trial run of analgesia and then evaluate the changes in behavior and physical functioning. For example, in the presence of pathology, during and after

potentially painful procedures, or when pain is suspected, administer acetaminophen 500-mg by mouth 3-4 times per day.²

Making the Diagnosis

Assuming that the diagnosis for senile dementia, or Alzheimer's disease, or one of the related dementias has been made, it is important to figure out how severe the dementing illness is. Once severely impaired older adults cannot report their pain verbally any more, behaviors must be observed. This observation must be coupled with an understanding of the types of pain producing illnesses in older people. The elderly must be examined for basic visual and auditory changes to screen for sensory deprivation. The inability to hear and see has a negative impact on cognitive decline and brings more confusion when attempting to categorize pain.

When attempting to identify the diagnosis responsible for pain, it is important to be aware of the most likely pain-producing differentials. Osteoarthritis (OA) is the most common cause of pain in the elderly. It is a disabling condition that affects 20 million people in the US and accounts for over \$15.5 billion in expenditures each year. The prevalence of OA increases with age. More than ½ of all elders and 45% to 65% of elderly nursing home residents suffer from OA.²⁰ This disease commonly resides in the hands, knees, hips, and the cervical and lumbar spine.

The leading cause of disability in elders is knee or hip pain from OA. The World Health Organization's report on the global burden of disease states, "knee OA is the fourth most important cause of disability in women and the eighth in men".²⁰ The pain from OA has distinctive characteristics and must be treated in all elders, those with intact cognition and those without. Symptoms occur during the performance of certain

activities and are made worse by activities involving the lower extremities, such as rising from a chair, walking, standing, or climbing stairs. Oftentimes, the disease manifests itself unilaterally. The clinical course of OA is slow, uneven, and variable. Obesity increases the worsening of this condition. Joint instability, morning stiffness, inflammation, and pain ranging from mild to severe occur.

There are disease specific pain measures for the knee and hip. The Arthritis Impact Measurement Scales (AIMS) and the “Western Ontario and McMaster University Osteoarthritis (WOMAC) Index are very helpful in the diagnosis of OA.²⁰ It is helpful to assess the knees and hips while moving and performing the activities listed above.

Low-back pain is a frequent complaint in the elderly. Back pain may be due to scoliosis, kyphosis, compression fractures from osteoporosis, degenerative disc disease, disc herniations, injuries from falls, and the list goes on. Ross, et al., cites several studies describing the prevalence of back pain among seniors. In her article entitled, “Senior’s Decision Making About Pain Management”, she includes a finding from Valkenburg’s research, in which he noted that 30% of men and 53% of US women over the age of 55 experienced peripheral joint pain. Von Kroff et al., estimated that among persons surviving to age 70, 85% will experience a problem of back pain.²¹

Osteoporosis is a major contributor to pain in the elderly. The bone thinning results in fractures of the spine, wrist, and hips. The stress of fractures within the musculoskeletal system can cause severe pain, disability, and even death.

Other frequent and painful chronic disorders not mentioned above include: cancers causing bony infiltration, nerve compression, raised intra-cranial pressure, and therapy-related pain. In addition to these, diabetes causes peripheral neuropathy,

cardiovascular disorders cause angina, claudication, and stroke. Other painful afflictions are: muscle spasm, constipation, candidiasis, soft tissue or visceral damage, ulceration, and lymphedema.²²

Treatment of Pain

A sound diagnosis is essential to proper treatment. The scope and purpose of this paper does not include treatment of cognitive impairments. Therefore, effort will be made to provide an overview of pain management interventions only.

Treatment of chronic disorders is complex. One must be cognizant of the fact that many elderly people experience a sense of helplessness initially, which commonly occurs in all chronically and mentally ill patients. Mental illness coupled with loss of resources leads to a decreased ability to cope with problems of everyday life. A person's environmental support systems, ability to cope, and inherited abilities all contribute to how a person adjusts.

Medications are the mainstay source of treatment and a step-wise approach must be made when instituting medicinal therapy. Analgesics are most commonly used to treat pain in the elderly. When deciding which medication to use, one should consider the burden versus benefit of pharmacological intervention. Some kinds of chronic pain may not be entirely relieved, but elders with pain should expect that they will experience relief. Although older people are more likely to experience adverse drug reactions, analgesic drugs are generally safe and effective for use by this population. Older persons have increased sensitivity for some drug classifications such as opioids. Recommendations for age-adjusted dosing are not available for most analgesics. Dosing requires careful

titration up and down. The cardinal rule of thumb in prescribing for older people is to “start low and go slow”.

Pain is easier to control if it is anticipated and treated early rather than treated at the point in which it is so severe that the patient can find no relief. Dosing should be around the clock rather than “PRN” or “as needed”. This is particularly true in long term care facilities and in patients who cannot ask for their pain medications because of communication and cognitive problems. Dellagasa makes an interesting point. He states, “Clinicians never schedule antibiotics PRN, yet pain medications are routinely scheduled as such.”⁴

The following study shows concerns with PRN prescriptive practice, especially in long-term care facilities.

A study completed in 2004 by Mezinski, Keller, and Luggen demonstrated that out of eighty-four patients, 30.1% actually received at least some of their PRN pain medications. Twenty-six of the 84 received only 1 dose of PRN pain medication during the data collection week. The probability of receiving a PRN pain medication was significantly lower among residents with greater impairment in ability to make them understood. The probability of receipt decreased, on average, by 28% with each increase in impairment level. The probability of receiving a PRN pain medication was significantly lower if the impairment was in the ability to understand others. The probability of receipt decreased, on average, by 26% with each increase in impairment. The probability was significantly lower among patients with speech impairment. This probability of receiving PRN meds decreased 36% with each increase in impairment level. And finally, the

probability of receiving a PRN pain medication was significantly lower among those with greater impairment in cognitive skills for daily decision making. This decreased on the average of 18% with each increase in level of impairment. Although patients had PRN pain medications ordered, less than 1/3 received their medicine.²³

Pain therapies must be individualized and include non-pharmacological interventions as well. The oral route is most preferred and should be used when possible. The clinician must be knowledgeable about age-related changes in the gut, liver, and kidney that might delay peak action, metabolism, and elimination.

Treatment of Mild to Moderate Pain:

1. Acetaminophen is a non-anti-inflammatory medication and dosing should be <4000mg/day. The effect of regular doses of acetaminophen is similar to that of NSAIDS for non-inflammatory conditions. Long-term use, particularly at higher doses requires measurement of liver function every 6 months. If the patient has liver disease, lower the dose to 325 mg to 650 mg tid.¹² Acetaminophen has been know to be helpful when treating OA. Opioids such as codeine can be combined with this drug for enhanced effect.
2. Aspirin is an excellent and cost-effective anti-inflammatory agent. It works well as the more expensive non-steroidal anti-inflammatory medications, but should be used with caution because it can cause bleeding by producing an irreversible platelet inhibition that can change bleeding times for several days. It is often avoided in the elderly due to these side effects, but should not be ruled out when considering treatment possibilities.

3. Non-steroidal anti-inflammatory drugs (NSAIDs) are indicated for mild to moderate pain, particularly in arthritic conditions, postoperative pain, soft tissue injury, and bone metastasis.⁵ Using more than one at a time is contraindicated. They must be used with caution because of the risk of adverse GI effects. This risk occurs in approximately 1% of the general population and 3-4% in older persons, and 9% in people with previous history of GI bleed. It is wise to use this drug at the same time with misoprostol, histamine H₂ blockers, and proton pump inhibitors in order to reduce the risk of bleeding in the gut. Again, it is important to weigh the risk vs. benefit ratio with this class of drugs. Renal impairment must be considered with the use of Ibuprofen. This medication may cause acute and temporary renal impairment, but usually goes away with the withdrawal of the drug. Opioids can be combined with NSAIDS for enhanced effect.

4. Ultram (Tramadol) can produce effective analgesia with a low rate of side effects. Its action appears to be mediated by both opioid receptor stimulation and inhibition of monoamine uptake. Dosing intervals can be increased to every 6-8 hours. Acetaminophen can be added to this drug to enhance its analgesic effect.

5. Corticosteroids can be used for arthritic pain and pain caused by acute nerve compression, visceral distension, increased intracranial pressure, and soft tissue infiltration like bone metastasis.⁵ Injections of steroids into the spine has proven helpful in some patients with chronic back pain.

Treatment of Moderate to Severe Pain:

Fears of drug dependency and addictions are often exaggerated by the desire to reduce illicit drug use in society. The prevalence of narcotic abuse among older people is not known, but those 60 or older account for less than 1% of patients attending

methadone maintenance programs.⁷ Cancer related pain usually requires more pain medication than is needed for the treatment of non-cancer related chronic pain. Monitoring the side effects of opioid therapy should focus on neurological and psychological function. Side effects are less common at low-moderate doses especially when started low and increased slowly. If side effects do occur, they most commonly include: impaired consciousness, hypoxia, myoclonus, and pruritis.¹

Some medications in this category include:

1. Morphine is the gold standard, drug of choice for moderate to severe pain, especially in treatment of cancer pain.
2. Oxydocone (Oxycontin) and Hydromorphone (Dilaudid) are recommended for severe pain.
3. Fentanyl (Duragesic) patch is a great alternative for patients who are nauseated or NPO, but must never be used in opioid naïve patient. It has strong sedative effects in patients unfamiliar with narcotic analgesics.

Because of the physiologic changes of aging on the pharmacokinetics of extended duration opioids, dosing schedules can be extended. For example, drugs that are given every 6-8 hours can be given every 12 hours instead. It is prudent to use shorter acting opioids and it is still possible to achieve relief that the longer acting, sometimes stronger meds afford. This is accomplished by offering these drugs every 6 hours around the clock.⁶

Treatment of Neuropathic Pain:

Nerve pain can be severe and unrelenting. Antidepressant and anticonvulsant therapy may be used alone or simultaneously for some refractory pain of this type, but

increases the chance for adverse drug reactions and interactions in the elderly. These drugs have a high side effect profile in older adults.

Non-pharmacologic Pain Interventions:

There are a multitude of physical modalities existing for pain relief. These non-pharmacological interventions can be used alone or in conjunction with medications. Evidence-based research on the efficacy of multiple physical modalities is weak and it seems that exercise is still the most valuable approach to pain reduction in all persons.^{21,}

²⁴ The following list demonstrates some of the available treatment approaches to pain reduction:

1. Assistive devices like walker, canes
2. Orthotic devices like splints or braces
3. Application of heat, cold, massage, TENS units
4. Passive and active ROM, exercises with physical therapy and occupational therapy
5. Use of distraction with activities, music, reading, movies
6. Rest, re-ordering and simplifying life, schedules,
7. Hydrotherapy

In summary, a multifaceted approach to pain assessment, diagnosis, and management of pain in cognitively impaired elderly is required. Future research on pain instruments for this population should address the identification of which instruments are reliable and valid at differing levels of cognitive impairment.¹⁵ Determination of the etiology of chronic pain is critical if proper pain relief is to be provided. Herr and Decker provide a beautiful summary of “Take Home Pearls for Pain Assessment” that seem a fitting ending to this paper. They are:

1. Health care providers and caregivers/families often harbor myths and misconceptions about pain and its treatment in the nonverbal elder with severe cognitive impairment that must be recognized and debunked.
2. The most common reason that pain is under treated in older adults is failure to assess it.
3. Older persons often have multiple persistent pain problems that must be considered in evaluation of new and ongoing pain conditions.
4. Alternate strategies are important when assessing pain in older persons who cannot communicate their pain.
5. Subtle pain behaviors and/or changes in routine/activities may be indicators of the presence of pain in those with severe cognitive impairment.
6. If behavioral changes are noted, assume pain is present until proven otherwise.
7. If you would experience pain in the similar circumstances, assume the nonverbal cognitively impaired person would as well.
8. Use of pain treatments play a key role in evaluating for the presence of pain in person who cannot communicate.
9. Involvement of family and/or caregivers may be useful in recognizing changes in behavior/activities that may suggest the presence of pain.
10. Teach family members and caregivers about the relationship between behavioral and activity changes and pain to facilitate their helping pain assessment.
11. Regular reassessment is essential to evaluate and monitor response to pain interventions and to recognize return of pain and/or new pain problems.

12. The same scale and behavioral manifestations used to identify pain in older persons should be used in evaluating effectiveness of interventions.
13. Identified pain behaviors must be communicated to other health care providers and across care settings.²

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