Developmental Trajectories: Adults are Big Children

A comprehensive review of longitudinal studies focused on the continuity or contiguity of pediatric and adolescent chronic pain problems into adulthood is beyond the scope of this guideline. Certainly, adults with chronic pain often recall having had difficulties in their earlier years. More substantial, however, are the prospective longitudinal or cross-sequential studies demonstrating these trajectories. Multiple studies have shown that children with functional abdominal pain are at risk for difficulties as adults that include anxiety or depressive disorders, functional gastrointestinal disorders, and other non-abdominal chronic pain. [276-280] Similar data have been generated for headaches [281,282] and back pain [283-285] Although no specific studies on prevention have been reported, it seems clear that by addressing pain complaints in the young, morbidity in the subsequent years will be reduced.

Managing Chronic Pain in Older Adults

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Aging is associated with unique biological, psychological and social factors that all play an important role in pain management. As in all age groups, evidence of long-term effectiveness of opioid therapy is lacking. However, in carefully selected and monitored patients, opioids may provide effective pain relief if used as part of a comprehensive multimodal pain management strategy. [286] A combination of pharmacologic, non-pharmacologic, and rehabilitative approaches in addition to a strong therapeutic alliance between the older patient and physician is essential to achieve desired treatment outcomes. [83]

Clinical Recommendations

1. Use opioids with short half-lives, as they are usually the best choices for older adults. Drugs with a long half-life can readily accumulate in older adults and result in toxicity (e.g. respiratory depression, sedation).
2. Weigh the individual patient's needs and clinical presentation with known risk factors when deciding whether short or long acting opioids are best.
3. Avoid the use of agonist-antagonist opioids in older adults as their psychomimetic side effects can be pronounced.
4. Be vigilant when treating patients over 65 to adequately relieve pain while minimizing the risk of delirium and other opioid-related adverse drug events.
5. Use the least invasive method of drug administration (e.g. oral).
6. Initiate opioid therapy at a 25% to 50% lower dose than that recommended for younger adults, and slowly and carefully titrate dosage by 25% increments on an individual basis, balancing pain relief, physical function, and side effects.
7. Have a plan for addressing constipation from the start of opioid therapy. Prophylaxis and/or treatment can include hydration, bulk fiber (only if hydration is maintained), activity, senna, and sorbitol (20 ml of 70% taken twice daily for 3 days per week).
8. Recognize and manage all potential causes of side effects, taking into consideration medications that potentiate opioid side effects:

a. Sedatives, tranquilizers, and anti-emetics can cause sedation.

b. Antihypertensives and tricyclics can cause postural hypotension.

c. Antihistamines, phenothiazines, tricyclics, and anticholinergics can cause confusion and urinary retention.

9. Avoid using more than one opioid at the same time. This makes it is easier to identify the cause of an adverse effect or toxic reaction. The incidence of delirium and other adverse reactions increases with the number of prescription drugs taken.

10. **Avoid** the following drugs:

    a. Codeine: the doses required for effective pain relief in older adults are associated with an increased incidence of side effects (e.g. constipation, nausea and sedation).

    b. Meperidine: the metabolite, normeperidine, is toxic to the CNS and can cause seizures, mood alterations and confusion; more so in older patients, especially if the patient has renal impairment.

    c. Methadone: has a high drug-drug interaction potential and is associated with prolongation of the QT interval and a potential risk of accumulation due to a long elimination half-life. In addition, methadone is difficult to titrate because of its large inter-individual variability in pharmacokinetics, particularly in the frail elderly.

Evidence

Approximately 60% of Americans over age 65 have persistent pain, most commonly from musculoskeletal disorders such as arthritis and degenerative spine conditions [287] but painful conditions related to neuropathies, advanced heart, kidney, or lung disease are also reported. [288,289] Older adults are also more likely to undergo surgeries associated with a high incidence of persistent pain. [290] Persistent pain or inadequate treatment in older adults is associated with reduced physical performance, falls, decreased sleep and self-rated health, mood, and cognition. [286]

Due to the frequency of chronic disease and potential for polypharmacy among older adults, drug-disease and drug-drug interactions should also be considered when prescribing. Nutritional alterations (e.g. protein deficiency), age-related changes (e.g. reduced hepatic and renal function, reduced body water, altered ratio of lean body mass to total body weight) and altered pharmacokinetics impact treatment options, necessitating careful evaluation and monitoring. [153] These age-related changes all make older adults especially vulnerable to opioid side effects and reduce the therapeutic window between beneficial doses and doses that are toxic or lethal.

Though evidence shows that older adults are less likely to misuse and abuse opioids [291] they are also likely to have higher levels of pain severity and depressive symptoms and more physical disability. These can increase misuse and abuse, [292] so an individual approach weighing risks and benefits is best.[286]

There is insufficient evidence to recommend short-acting versus long-acting opioids, or as-needed versus around-the-clock dosing of opioids. In general, short-acting opioids using as-needed dosing is

suggested. However, one large longitudinal nursing home study showed that extended-release opioids improved functional status and social engagement when compared to short acting opioids. [293] An individual's condition and need for proper pain management must be weighed against the risks of developing adverse effects of COAT.

The potential for side effects is high in older adults due to altered ability to distribute and excrete drugs, resulting in greater peak and longer duration of action. Common opioid side effects include nausea, vomiting, delirium, respiratory depression, sedation, pruritus, hypotension, and urinary retention (especially if there is coexisting benign prostatic hypertrophy). Older adults are particularly prone to constipation and even ileus, making prevention measures particularly important. Opioids have also been linked to an increased risk for falls and non-spine fractures in community living older adults. [294,295]

Patients over 65 who receive opioids for postoperative pain have a higher risk for opioid-related adverse drug events. [296] Delirium has a significant impact on the medical, functional, and cognitive outcomes of older patients, and the risk of delirium increases with inadequate pain control and the use of meperidine. [297,298] In fact, use of meperidine is listed in the 2012 American Geriatrics Society Beers Criteria as potentially inappropriate for older adults. [299]

Managing Chronic Pain in Cancer Survivors

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Management of chronic pain in cancer survivors involves unique issues that require a careful and thoughtful approach from the clinician. Although the term cancer survivor has a variety of definitions, for this guideline, a survivor is someone who has completed cancer treatment, is cured or in full clinical remission with no current evidence of disease, and is under cancer surveillance only. [8,300,301] For these patients, the foremost issues to keep in mind are:

1. Cancer survivors are at risk of recurrent disease, so development of new or worsening pain in the survivor requires a thorough evaluation to explain the pain.
2. The chronic pain experienced by cancer survivors is most often due to their earlier treatment for active cancer (e.g., chemotherapy-induced peripheral neuropathy, radiation treatment effects, persistent post-surgical pain) or residual effects from the previous tumor (e.g., compression fractures) and can persist for many years after that treatment has been completed. This is termed "chronic cancer-related pain" (CCRP), and for the purpose of this guideline, should not be confused with treatment for pain in the setting of active cancer.

In the absence of "red flags" for malignancy, simple exacerbations of chronic pain in the survivor may be treated in a manner similar to chronic non-cancer pain (CNCP). Hence, the best pain management strategy combines diligent monitoring for cancer recurrence with standard chronic pain management therapies, including multimodal and interdisciplinary approaches.