



- **FACT SHEET No. 8**

Management of Postsurgical Pain in Older Adults

The numbers of older adults is rapidly increasing in developing and developed nations alike. Individuals in this age group undergo surgery more frequently than those in younger age groups. Yet for several reasons, pain after surgery in older adults often is not recognized or properly treated. Its incidence may be underreported or improperly assessed because of misconceptions and educational deficits in health-care professionals, or such elderly patients may suffer cognitive impairment, concurrent age-related or age-independent symptoms, or atypical manifestations of pain from pathophysiological processes. (Abdulla A et al 2013, Herr and Garnand 2001)

Moreover, inadequate postoperative pain control may lead to significant functional, cognitive, emotional, and societal consequences. (Falzone E et al 2013, Chou R et al 2016, Herr A and Garnand L 2001)

Evidence-Guided Pain Management

Although much remains to be learned and translated into practice, the fast-growing population of older persons and great interest in understanding the unique challenges they pose for pain management have expanded the evidence base for guiding decisions concerning their care. For example, older subjects are less able to recruit descending inhibitory pathways to decrease pain during recurrent or continued peripheral nociceptive input. Evidence from populations of all ages, plus specifically in older persons, can now help clinicians assess and treat pain more effectively than ever and points them to favorable administrative systems to facilitate optimal pain care. (Falzone E et al 2013, Chou R et al 2016)



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Patient Evaluation

- Preoperative assessment should include a standard history and review of systems to document preexisting pain and other conditions not only related to the reason for surgery but also that might influence the patient's suitability to benefit from nonpharmacologic (e.g., psychobehavioral) or pharmacologic pain-control techniques. (Herr and Garnand 2001, Horgas AL et al 2012)
- Such a review spans cognitive function, including memory, as well as respiratory, cardiac, hepatic, endocrine, and renal systems that can alter pharmacokinetics and pharmacodynamics of administered drugs—thereby altering their benefit-to-risk ratios. Treatment of concurrent illnesses should be noted, especially when treatment such as chemotherapy may alter cardiac or pulmonary function or induce distal peripheral neuropathy (as may diabetes). Prior radiation therapy or earlier operations may predispose to localized neuropathic pain.
- Medication history is an integral part in managing pain in all patients, including perioperative management of the elderly. Preoperative opioid therapy requires special planning to overcome possible opioid tolerance. (Herr and Garnand 2001, Falzone E et al 2013) Other Fact Sheets in this series address each of the forgoing circumstances.
- Even in the absence of symptoms, preoperative age and patient-appropriate laboratory testing may reveal organ dysfunction relevant to pain or pain treatment via biochemical or hematologic measures, electrocardiography, or imaging studies.
- It is important to assess chronological age and biological age, mental and cognitive status, functional status, and chronic pain conditions. The physical examination should devote special attention not only to the patient's ability to communicate and mobilize but also to search for and document focal or diffuse neurological findings.

Postoperative Pain Assessment

- Consider supplementing or substituting self-reported numeric pain intensity or visual analog scale scores in elderly patients with cognitive impairment by incorporating the following:
 - Observational and behavioral assessments, including nonverbal signs of pain (Licht E 2009, Rakel B and Herr K 2004, McDonald DD and Molony SL 2004)
 - Verbal descriptive categorical scales or faces scales (Brown D 2011, Stolee P 2005)
- Assess and document pain intensity at frequent and regular intervals (Horgas AL 2012)



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- Avoid awakening a sleeping patient simply to document pain intensity; however, if respiratory depression is to be monitored, then level of sedation and ease of arousability are useful for that purpose
- Assess “dynamic pain relief”—the ability of patients to move or cough without being limited by the associated pain

Treatment

As for postoperative pain management generally, an individualized approach tailored to the patient and context (e.g., intensity of available monitoring) is optimal. The plan should:

- Be in written or electronic form for all care providers to see (Chou R et al 2016, Horgas AL 2012)
- Reflect realistic goals as determined through shared decision making with the patient and, as appropriate, family (Chou R et al 2016)
- Employ both nonpharmacological and pharmacological modalities whenever possible (Chou R et al 2016, Horgas AL 2012)

Nonpharmacological modalities include: (Horgas AL 2012)

- Education about what the patient should expect at each phase of recovery
- Counseling and supportive communication
- Psychobehavioral techniques, including cognitive behavioral therapies, mindfulness, relaxation, and hypnosis
- Supportive, soothing touch
- Topical cold or heat therapy
- Music therapy
- Transcutaneous electrical nerve stimulation (TENS)
- Therapeutic massage
- Physical therapy, including splinting as appropriate
- Acupuncture

Pharmacological interventions should:

- “Start low and go slow” (when increasing dosing or frequency) (Falzone E et al 2013, Chou R et al 2016) but do not undertreat
- Consider frequently encountered patient, disease, and drug-related issues while planning treatment (e.g., alterations in mental status due to sleep deprivation and unfamiliar surroundings or secondary to electrolyte abnormalities)



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- Avoid intramuscular injections and prefer the intravenous route as feasible (Chou R et al 2016)
- Consider shifting from parenteral to oral administration of analgesics when the patient is able to take them safely (and not vomit them out) (Chou R et al 2016)
- Closely monitor potential overmedication and other adverse effects (Horgas AL 2012)
- Assess liver and kidney function, particularly the latter, which is common perioperatively given frequent blood loss and hypovolemia superimposed upon subclinical renal insufficiency, plus common NSAID use
- Prefer non-opioids for mild to moderate pain and consider opioids for moderate to severe pain—providing there are no contraindications for either (Horgas AL 2012, Chou R et al 2016)
- Consider preemptive analgesia
- Begin loading with analgesics prior to the end of surgery (Horgas AL 2012, Chou R et al 2016)

Analgesics Commonly Used in Older Persons

- **Acetaminophen** (McNicol E et al 2016, Chou R et al 2016, Bollinger AJ et al 2015, McCartney CJ and Nelligan K 2014, Falzone E et al 2013, Abdulla A et al 2013, Karani R and Meier DE 2004)
 - First line of treatment because of its efficacy and safety, particularly in mild-to-moderate pain (McNicol E et al 2016)
 - Maximum dose not to exceed 4 gm/24 hours; for frail or malnourished patients, those older than 80 years, or with frequent alcohol use, the total 24-hour dose limit should be lowered to 2-3 gm
 - Use with caution in patients with liver disease
- **NSAIDs** (McCartney CJ and Nelligan K 2014, Falzone E et al 2013, Horgas AL 2012, Karani R and Meier DE 2004)
 - Although effective, adverse events and side effects require cautious use.
 - Use lowest dose for shortest duration
 - Closely monitor for side effects including gastrointestinal bleeding, nephrotoxicity and delirium
- **Opioids** (Falzone E et al 2013, Aubrun F 2005, Herr A and Garnand L 2001)
 - Commonly administered parenterally or via the epidural route for the first 24-48 postoperative hours.



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- Patient-controlled analgesia can be used for cognitively intact patients
 - Increased sensitivity to sedating effects of opioids is seen in elderly, based, e.g., upon pharmacokinetics (slow clearance of opioids and metabolites), pharmacodynamics (baseline cognitive impairment), or comorbidities such as pulmonary disease or electrolyte abnormalities (e.g., low serum sodium)
 - Close monitoring for side effects including respiratory depression, sedation, urinary retention and constipation is necessary.
 - A plan for tapering should be in place to avoid unnecessarily prolonged opioid therapy post-discharge.
- **Regional analgesia** (McCartney CJ and Nelligan K 2014, Falzone E et al 2013, Halaszynski TM 2009)
 - Regional analgesia such as epidural analgesia allows targeting of therapy and potentially denser analgesia.
 - Use peripheral nerve blocks when feasible
 - Combining epidural local anesthetic with opioid offers multimodal pain relief
 - The postsurgical care team (e.g., ward nurse, pharmacist, anesthesiology staff) must be specially trained to safely and effectively provide and monitor continuous infusions of regional anesthetics
- **Multimodal analgesia** (McCartney CJ and Nelligan K 2014, Falzone E et al 2013)
 - Multimodal therapy combining different classes of medication, e.g., low, analgesic doses of ketamine, or antiepileptic drugs, often achieves better pain relief because of additive or synergistic action, dose sparing (especially for opioids), and fewer adverse effects.

Pain Management Plan at Discharge

- Communicate both to patients and primary health-care professionals:
 - List all analgesics along with individualized instructions to take, monitor, and cease the therapy as appropriate
 - Integrate nonpharmacological interventions
 - Clarify whom to contact in case of uncontrolled or persistent pain



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