Conservative Treatment for Neck Pain: Medications, Physical Therapy, and Exercise

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KEYWORDS

• Neck pain • Medications • Exercise • Physical therapy
• Modalities

This article offers conservative treatment strategies for patients suffering from musculoskeletal causes of neck pain. Basic pharmacology is reviewed, including that of opioids, nonsteroidal anti-inflammatory drugs (NSAIDs), adjuvants, and topical analgesics. Moreover, indications for therapeutic exercise, manual therapy, and modalities are reviewed, along with any supporting literature. Treatment considerations with each category of medication and physical therapy are discussed. This article is meant to serve as a resource for physicians to tailor conservative treatment options to their individual patients.

MEDICATIONS

Recommendations of the World Health Organization (WHO) can help guide clinical decision making regarding appropriate medications for the patient with neck pain. These are organized into a conceptual stepladder (**Box 1**).

The first step of the ladder involves the use of nonopioid medications and adjuvant medications. Nonopioid medications typically include acetaminophen and NSAIDs,

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Box 1
WHO analgesic stepladder

Step 1

- Nonopioid medications: ± Adjuvants
  - Tylenol
  - NSAIDs

Step 2

- Add "weak" opioid for moderate pain: ± Adjuvants
  - Acetaminophen + Codeine
  - Acetaminophen + Oxycodone
  - Acetaminophen + Hydrocodone

Step 3

- Start "strong" opioid: ie, ± Adjuvants
  - Morphine
  - Dilaudid
  - Methadone
  - Oxycodone
  - Fentanyl

Data from World Health Organization. Cancer pain relief. 2nd edition. Geneva (Switzerland): World Health Organization, 2002.

whereas adjuvant medications include certain antidepressants, antiepileptics, and muscle relaxants. If the use of step 1 strategies does not satisfactorily manage the patient's pain, the next step of the WHO analgesic ladder is the addition or substitution of a "weak" opioid. This category includes hydrocodone or oxycodone + acetaminophen. Dosing of opiate + acetaminophen medications are limited by the maximum allowable amount of acetaminophen in a 24-hour period. Similarly, if these do not satisfactorily control a patient's pain, WHO recommendations for step 3 are the advent of "strong" opioids. Medications considered "strong" opioids are morphine, oxycodone, fentanyl, oxymorphone, and methadone.

Nonsteroidal Anti-Inflammatories

NSAIDs are on the first step of the WHO analgesic ladder (**Table 1**). NSAIDS reduce inflammation by blocking prostaglandin production through the inhibition of cyclooxygenase enzymes, COX-1 and COX-2, in the prostaglandin production pathway.[1,2] Most anti-inflammatory actions of NSAIDs are attributable to inhibition of COX-2, whereas many of the unwanted side effects are attributable to inhibition of COX-1. Traditional NSAIDs inhibit both COX-1 and COX-2, thereby reducing pain and inflammation but also predisposing to unwanted gastrointestinal (GI) side effects. The cumulative risk for serious adverse GI events increases over time. Risk factors for serious GI events are age, corticosteroid use, high NSAID dose, disability level, and previous NSAID-induced GI symptoms.[3] Medications more selective of COX-2 inhibition such as celecoxib and meloxicam have fewer GI side effects because gastric production of cytoprotective prostacyclin through the COX-1 pathway is preserved. Although