

***Anesthesiology Rounds***  
**November 2002**

**Nonsteroidal anti-inflammatory drugs in postoperative pain management**  
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**Objectives:**

- To understand the mechanism of action of nonsteroidal anti-inflammatory drugs (NSAIDs) and to appreciate the differences between traditional NSAIDs and specific cyclooxygenase (COX)-2 inhibitors (coxibs).
- To define the use of acetaminophen in postoperative pain management.
- To decide if classical NSAIDs or COX-2 inhibitors are indicated to supplement analgesia, taking into account the type of surgery to be performed and the current health status of the patient.
- To appreciate the effects of NSAIDs on the gastrointestinal tract and the cardiovascular and renal systems.
- To be aware that the new COX-2 inhibitors also possess significant side effects and that their use still needs to be validated for the management of postoperative pain.

**Questions: (Only 1 response is correct)**

1. Regarding prostaglandins, which of the following statements is true:
  - a. Prostaglandins are synthesized from arachidonic acid only following both the actions of cyclooxygenase (COX)-1 and COX-2
  - b. COX-1 is present only in the stomach, the kidney, and in neurons
  - c. COX-2 is not present in the brain or the kidney
  - d. Prostaglandins act by binding to specific receptors
  - e. Prostaglandins are not very important mediators of the inflammatory process.
2. Concerning the side effects associated with NSAID use, which of the following statements is false:
  - a. NSAIDs are responsible for 25% of the adverse drug reactions reported
  - b. Congestive heart failure is not a significant problem with NSAIDs
  - c. COX-2 inhibitors should not be prescribed in patients with renal dysfunction
  - d. Gastrointestinal side effects of NSAIDs are more frequent in patients at advancing age and if high doses are used
  - e. Recent studies have shown that COX-2 inhibitors seem safer than traditional NSAIDs in terms of gastrointestinal side effects.

3. Considering the efficacy of NSAIDs to treat postoperative pain, which statement is true:
- a. Acetaminophen alone is no more active than placebo
  - b. The combination of acetaminophen and NSAIDs is highly recommended for all postoperative patients
  - c. NSAIDs in general seem to be superior to acetaminophen
  - d. Acetaminophen, because of its potential hepatic toxicity, should be used in low doses (maximum of 2 g daily)
  - e. The preemptive use of NSAIDs is beneficial to most patients.
4. Concerning the use of COX-2 inhibitors to treat postoperative pain, which of the following statements is false:
- a. COX-2 inhibitors are superior to placebo and comparable to classical NSAIDs in terms of efficacy in dental or oral surgery
  - b. In ambulatory surgery, COX-2 inhibitors seem effective although further studies are needed to define their optimal role
  - c. Recent studies have shown that COX-2 inhibitors have a role to play in preemptive analgesia
  - d. Celecoxib, rofecoxib, and valdecoxib are all COX-2 specific inhibitors
  - e. Considering recent studies, COX-2 inhibitors should be prescribed in all post-operative patients.

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