

□ Nonsteroidal Anti-Inflammatory Drugs for Postoperative Analgesia

□ Indications in Postoperative Care

NSAIDs are indicated for:

- **Mild pain to moderate pain**
- As an **adjunct** to opioids in **severe pain**
- In **multimodal analgesic protocols** to improve pain control and reduce opioid consumption

□ Special Considerations in Neurosurgery

Historically, the use of NSAIDs in neurosurgery has been limited due to:

- Concerns about **postoperative bleeding** (platelet dysfunction)
- Potential for **renal toxicity** and **gastric bleeding**
- Risk of **intracranial hemorrhage**

However, recent evidence supports their **safe use** after craniotomy:

Cardoso et al. (*Neurosurgery*, 2025): A meta-analysis of 7 studies found **no significant increase in postoperative bleeding or surgical reintervention** in patients receiving NSAIDs after brain surgery.

□ Benefits

- Effective pain control
- Opioid-sparing effect
- Non-sedating
- Anti-inflammatory properties

⚠ Risks

- Gastrointestinal bleeding (especially with COX-1 inhibitors)
- Platelet dysfunction → theoretical risk of surgical site bleeding
- Nephrotoxicity in volume-depleted patients
- Cardiovascular risks with prolonged use

□ Commonly Used NSAIDs in Postoperative Settings

Drug	Selectivity	Route	Clinical Notes
Ibuprofen	Non-selective	PO/IV	Common, short half-life
Ketorolac	Non-selective	IV/IM	Potent analgesic, higher bleeding concern
Diclofenac	Non-selective	PO/IM	Moderate analgesic
Celecoxib	COX-2 selective	PO	Lower GI/bleeding risk, good for high-risk patients

Clinical Guidelines

- Use **lowest effective dose** for **shortest necessary duration**
- **Assess bleeding risk** prior to NSAID administration
- **Avoid** in patients with:
 1. Active or recent bleeding
 2. Coagulopathy or thrombocytopenia
 3. Severe renal impairment
 4. Peptic ulcer disease

Conclusion

NSAIDs are an effective and generally safe component of **postoperative analgesia**, including after neurosurgical procedures such as **craniotomy**. Their use should be guided by **individual risk assessment**, and they are best utilized within a **multimodal analgesic approach**.

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