FPM

Faculty of Pain Medicine
ANZCA

NSAIDs for acute pain

Guidelines for the use and prescribing of celecoxib

May 2024

Purpose

Non-steroidal anti-inflammatory drugs (NSAIDs) should be considered for use in the management of acute pain for their ability to improve analgesia and reduce the overall requirements for opioids.[1] In the inpatient setting, the use of selective COX 2 inhibitors such as celecoxib, meloxicam and parecoxib is associated with the least risk for adverse side-effects when compared to non-selective NSAIDs such as ibuprofen.[1]

Studies support the use of selective NSAIDs in acute pain but regard that they should be used for the shortest duration and at the lowest effective dose. Large studies such as the PRECISION[2] trial recommend avoiding use in patients who are at high risk, such as those with cardiovascular disease; however, recognition is also given to the fact that if they are indicated, they should be used for the shortest duration and lowest effective doses given the evidence that risk is duration and dose-dependent.[3]

The most common reasons for not including COX 2 NSAIDs in analgesic regimens are mostly unfounded.

Current evidence regards that:[1]

- Due to its lack of antiplatelet effect, the use of celecoxib does not increase the risk of perioperative blood loss.
- Celecoxib does not increase the risk of anastomotic leak following colorectal surgery.
- In patients with normal renal function, perioperative parecoxib is not associated with an increased risk of renal impairment.
- COX 2 NSAIDs do not pose a risk for bronchospasm in patients with NSAID-exacerbated respiratory disease.
- Short-term use when compared with placebo, does not increase the risk of cardiovascular adverse effects after non-cardiac surgery.

Appropriate NSAID use in acute pain also supports the Australian Commission for Safety and Quality in Health Care (ACSQH) Opioid Analgesic Stewardship in Acute Pain Clinical Care Standards - Acute care edition (CCS), Quality Statement 5: Appropriate Opioid Analgesic Prescribing.

Recognising the evidence and in support of the CCS, St Vincent's Hospital, Sydney developed prescribing guidelines for the use of celecoxib in patient populations where it may not otherwise be considered, for example in older age, moderately impaired renal function or mild cardiac disease.

These guidelines were developed following widespread consultation with renal physicians, cardiologists, surgeons, and geriatricians at St. Vincent's Hospital Sydney. The document is endorsed by St. Vincent's Hospital, Sydney Acute Pain Service and drug and therapeutics committee. The protocol screens for multiple risk factors and provides variations on dose depending on the existence or otherwise of co-morbidities. It now guides prescribing of COX-2 medication for all patients

In younger well patients with severe pain, a short course (e.g. 3-5days) of up to 200mg BD could be considered, and then a decrease to 100mg bd, if and anti-inflammatory is still indicated. Recommendation would be for time limited use.

Celecoxib prescribing guidelines

These guidelines have been endorsed by APS and St Vincent's Hospital Sydney DTC.
This is not an exhaustive list and clinical judgement should always guide final prescribing decisions.

Celecoxib dose (in older age)	**Full dose**	100mg orally twice daily
	Half dose	100mg orally once daily
	Duration	5-10 days

	Comorbidity		**Dosage**
Prescribing considerations[4-7]	**Cardiovascular**	**Mild heart failure** *(NYHA 1&2)*	Full dose
		Moderate/severe heart failure *(NYHA 3&4)*	Do not use
		History of ischaemic heart disease	Full dose
	Renal	**eGFR >60**	Full dose
		eGFR 40-60 *(CKD class 3 or worse) consider half dose after risk/benefit analysis*	Half dose
		eGFR <40	Do not use
		Single functioning kidney	Do not use
		Any solid organ transplant	Do not use
	Gastrointestinal	**Previous bleeding peptic ulcer**	Full dose with PPI
		IBD *(in remission)*	Full dose
	Hepatic	**Decompensated cirrhosis**	Do not use
	Weight	**<50Kg**	Half dose
	Frailty	**Age >85 AND admission albumin <35**	Half dose

	Medications	**Dosage**
Medications[4-7]	**ACE inhibitor or ARB** *(if only for BP)*	Full dose
	Beta blocker *(if only for BP or arrhythmia)*	Full dose
	Frusemide *(<40mg daily)*	Half dose
	ACEI/ARB plus diuretic +/- beta blocker	Do not use
	Carvedilol/bisoprolol/sacubitril/valsartan or similar for use in heart failure	Do not use

Precautions[4-7]	• Avoid if septic/hypovolaemic/acutely unwell. • In patients who are NBM contact APS for advice. • Allergy to sulfonamides/aspirin does not preclude prescribing of celecoxib.

Abbreviations: APS - Acute Pain Service; **DTC** - Drug and Therapeutics Committee

References:

1. Schug S A, et al. Acute pain management: scientific evidence. Australian and New Zealand College of Anaesthetists. 2020. Available from: https://www.anzca.edu.au/resources/college-publications/acute-pain-management/apmse5.pdf Accessed January 2024.
2. Nissen SE, et al. PRECISION Trial Investigators. Cardiovascular safety of celecoxib, naproxen, or ibuprofen for arthritis. N Engl J Med. 2016;375:2519–2529.
3. Pepine CJ, Gurbel PA. Cardiovascular safety of NSAIDs: Additional insights after PRECISION and point of view. Clin Cardiol. 2017;40:1352–1356.
4. Banerji A, et al. Drug allergy practice parameter updates to incorporate into your clinical practice. The Journal of Allergy and Clinical Immunology: In Practice. 2023;11(2):356-368.
5. Cheng BR, et al. Cardiovascular safety of celecoxib in rheumatoid arthritis and osteoarthritis patients: A systematic review and meta-analysis. PloS One. 2021;16(12):e0261239.
6. Smith WB, Katerlaris CH. 'Sulfur allergy' label is misleading. Australian Prescriber. 2008;31(1):8-10.
7. The Renal Drug Database. Celecoxib. Available from https://renaldrugdatabase.com/ Accessed January 2024.

The Resources for Opioid Stewardship Implementation (ROSI) have been developed by Ms. Bernadette Findlay, Clinical Nurse Consultant, and Associate Professor Jennifer Stevens, Anaesthetist and Pain Medicine Specialist at St Vincent's Hospital, Sydney, in conjunction with the Faculty of Pain Medicine. Development of the ROSI has been supported by an unrestricted educational grant from CSL Seqirus. CSL Seqirus were not involved in the creation of intellectual property or any other content contained within the ROSI.

ST VINCENT'S HOSPITAL SYDNEY