AANS/CNS Section on Pediatric Neurological Section Quality Improvement Committee – 3.4.2025

POSTOPERATIVE USE OF NSAIDS AND KETOROLAC IN PEDIATRIC NEUROSURGERY

Responses obtained from email communication in answer to the Fall 2024 Pediatric Short Cuts. Please contact the AANS/CNS Peds Section QI committee if you'd like to provide your Institutional practices or guidelines regarding "use of Toradol and NSAIDs in Pediatric Neurosurgery".

Surgeon/Institution	Response
Julia Radic U of Saskatchewan (Canada)	No postoperative restrictions regarding the use of NSAIDs (exception for spinal fusion cases). Promotes adequate intraoperative hemostasis with various hemostatic agents (examples like Floseal or Surgiflo).
Jay Riva-Cambrin U of Calgary (Canada)	No written protocol or order set. Surgeons frequently use Ketorolac starting on postoperative day 1.
Albert Tu U of Ottawa (Canada)	No specific postoperative order set after craniotomy for consensus use pertaining to the use of Ketorolac / NSAIDS. "*I personally use these medications routinely after cranial surgery as part of routine post op pain management*."
Roy Dudley McGill (Canada)	NSAIDS: every patient receives IV ketorolac (regular q6hrs, not PRN) for 48hrs (or less if they are going home earlier), then switch to PRN Ibuprofen. Exception for children less than 6 months old (based on Pharmacy recommendations). "*It's my protocol, which is a variation of the Children's Hospital Colorado protocol. (…) However, it is not a departmental thing (…).*" *Routine medications:* *Ketorolac 0.5 mg/kg/dose IV q6hr x 2 days, then* *Ibuprofen 10mg/kg/dose po q6hr prn* *Tylenol 10mg/kg/dose po q4hr prn* *Morphine 0.05 - 0.1mg/kg/dose IV q2-4hr prn* *Laxaday 8.5 to 17 g daily Until bm* *Ancef 50mg/kg/dose q8hr x 3 doses* *Zofran 0.1mg/kg q6hr max 4mg per dose* *Decadron different for each patient*
Jeff Atkinson McGill (Canada)	Uses Ketorolac IV initially then eventually transition to Ibuprofen on postoperative day 1- or 2, for almost all postoperative patients routinely. Occasionally receive a Toradol bolus in the OR. Exceptions for vascular lesions or tumors with concerns for hemostasis, may wait until next morning. "*That is probably just superstition though. Bleeding issues don't seem to be a major risk in the literature and there is a significant reduction in narcotic use with Toradol that appears to really help post op recovery*."
Simon Walling Dalhousie University (Canada)	Routinely use NSAIDs including ketorolac (especially in the first 24-48 hours if no renal issues. May consider avoiding in patients receiving vancomycin, long-term steroids or prolonged emesis.
Vivek Mehta U of Alberta (Canada)	Ketorolac started only on postoperative day 1 if follow up imaging reassuring (q8H dosing for 48 hours only). Personal anecdote of 2 issues with use of Toradol at q6h dosing but comments that Richardson et al. 2016 publication suggests Toradol use if safe. Richardson MD, Palmeri NO, Williams SA, Torok MR, O'Neill BR, Handler MH, Hankinson TC. Routine perioperative ketorolac administration is not associated with hemorrhage in pediatric neurosurgery patients. J Neurosurg Pediatr. 2016 Jan;17(1):107-15. doi: 10.3171/2015.4.PEDS14411. Epub 2015 Oct 9. PMID: 26451718. https://pubmed.ncbi.nlm.nih.gov/26451718/

Adrianna Ranger Western University, London (Canada)	No specific postoperative order set after craniotomy for consensus use pertaining to the use of Ketorolac / NSAIDS. Routine use in pediatric neurosurgery cases.
Jesse Winer OHSU (USA)	No department-wide algorithm for Ketorolac/NSAID use. Frequency of use is surgeon specific and most comfortable to use when there isn't an increased concern for bleeding. Also cites Mazur-Hart et al. 2021 publication regarding postoperative care for Chiari decompression. Mazur-Hart DJ, Bowden SG, Pang BW, Yaghi NK, Nugent JG, Yablon LD, Domreis WO, Ohm ET, Sayama CM. Standardizing postoperative care for pediatric intradural Chiari decompressions to decrease length of stay. J Neurosurg Pediatr. 2021 Aug 20;28(5):579-584. doi: 10.3171/2021.5.PEDS20929. PMID: 34416728. https://pubmed.ncbi.nlm.nih.gov/34416728/
Marike Zwienenberg UC Davis (USA)	Routine use of Ketorolac within 12 hours after surgery, unless hemorrhagic mass or vascular case
Joe Piatt Delaware Nemours (USA)	Ketorolac prescribed scheduled (not PRN) for every case except infants less than 6 months, outpatient surgery, and spinal fusions (caveat for latter case being those admitted to neurosurgery, unaware of what orthopedic service prescribes). "*We do not regard it as a risk for postop hemorrhage. (…), our service has not written a discharge prescription for opiates in many years*."
David Sandberg UTH (USA)	Routinely use ibuprofen (10 mg/kg q4h around the clock while awake then q4h prn thereafter). No routine use of Ketorolac but no issues with it if anesthesiologist requests its use.
Virendra Desai CHLA (USA)	Ketorolac and NSAIDs ok for all procedures except craniotomy for epilepsy surgery grid/strips.
Greg Albert Arkansas Children's (USA)	*"I typically don't allow NSAIDs until POD 2. I don't use much Ketorolac, mostly ibuprofen. I know this is outdated fear of antiplatelets so this email chain may help change my practice."*