



NSAIDS IN PEDIATRIC RHEUMATOLOGY

Welcome to our FAQ on non-steroidal anti-inflammatory drugs (NSAIDs) in pediatric rheumatology.

NSAIDs are widely used in infants, children, and adolescents as antipyretic, analgesic, and anti-inflammatory drugs for various pediatric rheumatic conditions. As a healthcare provider, it's crucial to understand the benefits and risks of NSAIDs to ensure safe and effective treatment. The article delves into frequently asked questions about NSAIDs, including their mechanisms of action, adverse effects, and dosing guidelines.

1. How do NSAIDs work?

NSAIDs exert their effects by inhibiting the activity of cyclooxygenase (COX) enzymes, which are involved in the production of prostaglandin, prostacyclin, and thromboxane. These chemicals play a crucial role in inflammation and pain in our body. COX-1 helps protect stomach endothelium and platelets functions. Both COX 1 and COX-2 play a role in inflammation, fever and pain. Most NSAIDs are nonspecific, meaning they interfere with both COX-1 and COX-2. While this helps relieve pain and inflammation, it also leaves the stomach vulnerable to ulcers and bleeding.

2. Are NSAIDs safe for children?

NSAIDs are generally considered safe for children. However, adverse effects like gastrointestinal symptoms, gastropathy, hematologic, immunologic, allergic and nephrotoxicity can be observed. To improve safety, NSAIDs have to be started at the lowest age/weight appropriate recommended doses.

3. What NSAIDs are commonly used in pediatric rheumatology?

NSAIDs that are commonly used in pediatric rheumatology include ibuprofen, acetyl salicylic acid (aspirin), etodolac, tolmetin, meloxicam, naproxen, and celecoxib.

4. How are NSAIDs dosed in children?

NSAID dosing in children is typically based on weight, and the dosage may vary depending on the specific medication and the condition being treated. The recommended dosages for NSAIDs in children are as follows:

- Ibuprofen: 5-10 mg/kg/dose every 6-8 hours, up to a maximum of 40 mg/kg/day
- Naproxen: 5-7 mg/kg/dose every 8-12 hours, up to a maximum of 15 mg/kg/day
- Celecoxib: 50-100 mg twice daily for children between 10-25 kg, 100-200 mg twice daily for children >25 kg

5. Can NSAIDs be used long-term in children?

NSAIDs can be used for short-term pain relief in children. Long-term use should be avoided whenever possible due to their potential side effects. If a child requires long-term pain relief, other treatment options may be considered.

6. Are there any contraindications for NSAID use in children?

NSAIDs should be used with caution in children with a history of gastrointestinal ulcers, renal disease, or bleeding disorders. They should also be used with caution in children who are taking other medications that may interact with NSAIDs. NSAIDs can be used in combination with other medications for pediatric rheumatology conditions.

7. What are the latest research findings on NSAIDs in pediatric rheumatology?

Recent research has focused on the safety and efficacy of NSAIDs in children with rheumatic conditions, as well as their potential role in managing pain and inflammation. For example, a 2021 study published in the *Journal of Rheumatology* found that celecoxib was safe and effective in children with juvenile idiopathic arthritis.

8. What are the implications of the latest research on NSAIDs in pediatric rheumatology?

The latest research on NSAIDs in pediatric rheumatology has helped to establish the safety and efficacy of these medications in children with rheumatic conditions. This information can help healthcare providers make informed decisions about the use of NSAIDs in their pediatric patients.

9. Which NSAIDs are approved by the Central Drugs Standard Control Organization (CDSCO) in children in India?

Ibuprofen, ketoprofen, naproxen, celecoxib and diclofenac are approved in India for children.

10 Which NSAIDs are not CDSCO approved for children in India?

While many NSAIDs are generally used off-label in children, some NSAIDs are not CDSCO approved for use in children due to a lack of sufficient data or safety concerns. Aspirin, etodolac, indomethacin, tolmetin, sulindac, and piroxicam are not CDSCO approved in children.

NSAID	Type	Dose	Indications	Side Effects
Ibuprofen	Non-selective NSAID	5-10mg/kg/dose every 6-8 hours, up to 40mg/kg/day	Fever, pain, inflammation, menstrual cramps, arthritis	Stomach ulcers, stomach bleeding, kidney problems, allergic reactions. Aseptic meningitis in lupus.
Naproxen	Non-selective NSAID	5-10mg/kg/dose every 8-12 hours, up to 15mg/kg/day	Fever, pain, inflammation, menstrual cramps, arthritis	Stomach ulcers, stomach bleeding, kidney problems, allergic reactions, pseudoporphyria
Celecoxib	Selective COX-2 inhibitor	50-100mg twice daily for juvenile idiopathic arthritis up to 200 mg/day	Arthritis	Stomach ulcers, stomach bleeding, kidney problems, allergic reactions, increased risk of cardiovascular events
Indomethacin	Non-selective NSAID	1-2mg/kg/dose every 6-8 hours, up to 3mg/kg/day	Fever, pain, inflammation, arthritis, Pericarditis in SJIA, spondyloarthropathy	Stomach ulcers, stomach bleeding, kidney problems, allergic reactions. Headache in the initial part of study
Meloxicam	Selective COX-2 inhibitor	0.125mg/kg/day, up to 7.5mg/day for juvenile idiopathic arthritis	Arthritis	Stomach ulcers, stomach bleeding, kidney problems, allergic reactions.

Etodolac	Non-selective NSAID	10-20mg/kg/day in divided doses, up to 1000 mg/day	inflammation, arthritis	Stomach ulcers, stomach bleeding, kidney problems, allergic reactions
Etoricoxib	Selective COX-2 inhibitor	40-50 kg: 60mg/dose 90 mg/dose	Pain/ inflammation/ menstrual pain	Flu, indigestion, stomach pain, diarrhoea, peripheral edema
Aspirin	Non-selective NSAID	80-100(<25Kg), 2500mg/m2. Antiplatelet dose = 3-5mg/kg/day single dose	Pain, inflammation, arthritis, kawasaki disease, anti- platelet aggregation	Liver toxicity, Reyes syndrome, stomach ulcers

Titbits

- While NSAIDs can be effective in treating pain and inflammation, they can also have serious side effects particularly when used at high doses or for long periods of time. Indomethacin and ASA are more toxic than others.
- Selective COX 2 inhibitors NSAIDS have fewer side effects.
- Anti-inflammatory doses of NSAIDS are higher than antipyretic or anti analgesic doses.
- Adverse effects may be more in cases of hypoalbuminemia, renal or hepatic disease.
- Preferably to give drugs after food to reduce toxicity.
- Elevation of liver enzymes to more than 3 times normal should warrant a change in doses or stoppage of the drug.
- While mefenamic acid is CDSCO approved, its approval is specific to the formulation and strength of mefenamic acid. It is prudent to not use these drugs indiscriminately.



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