

NSAIDS - MODE OF ACTION

- Nonsteroidal anti-inflammatory drugs (NSAIDs) block the Cox enzymes and reduce prostaglandins throughout the body.
- As a consequence, ongoing inflammation, pain, and fever are reduced.
- Since the prostaglandins that protect the stomach and support the platelets and blood clotting also are reduced,
- There two Cox enzymes, Cox-1 and Cox-2. Both enzymes produce prostaglandins that promote inflammation, pain, and fever.
- However, only Cox-1 produces prostaglandins that support platelets and protect the stomach. NSAIDs differ in how strongly they inhibit Cox-1 and, therefore, in their tendency to cause ulcers and promote bleeding.

SIDE EFFECTS

The frequency of side effects varies between the drugs.

The most common side effects are;

- Nausea
- Vomiting
- Diarrhoea
- Constipation
- Decreased appetite
- Rash
- Dizziness
- Headache,
- Drowsiness.
- NSAIDs may also cause fluid retention, leading to oedema.
- The most serious side effects are kidney failure,

- Liver failure,
- Ulcers
- Prolonged bleeding after an injury or surgery.
- People with asthma are at a higher risk for experiencing serious allergic reaction to NSAIDs. Individuals with a serious allergy to one NSAID are likely to experience a similar reaction to a different NSAID.
- Use of aspirin in children and teenagers with chicken pox or influenza has been associated with the development of Reye's syndrome. Therefore, aspirin and nonaspirin salicylates (e.g. salsalate) should not be used in children and teenagers with suspected or confirmed chicken pox or influenza.

REVIEW OF ROUTE OF ADMINISTRATION

1. Comparing analgesic efficacy of non-steroidal anti-inflammatory drugs given by RECTAL, IV,IM and ORAL for acute and chronic pain. (Tramèr M, Williams J, Carroll D, Wiffen PJ, McQuay HJ, Moore RA. Comparing analgesic efficacy of non-steroidal anti-inflammatory drugs given by different routes for acute and chronic pain. *Acta Anaesth Scand* 1998; 42:71-9.)

Conclusion

- In **renal colic** NSAIDs act faster when given intravenously compared with intramuscular or rectal routes.
- In all other pain conditions there is no evidence that injected NSAIDs were better than oral.
- Increased reporting of adverse effects with intravenous and rectal administration.

2. Rectal or Intravenous non-steroidal anti-inflammatory drugs in acute renal colic (Caroline Lee, Specialist Registrar, Dhurga Gnanasegaram and Margaret Maloba, Specialist Registrars (emj, 2005)

Reviewed 179 papers, 2 relevant

1. Nelson CE, Nylander C, Olsson AM, et al. Rectal v. intravenous administration of indomethacin in the treatment of renal colic. *Acta Chirurgica Scandinavica* 1988;154(4):253-255.
2. Nissen I, Birke H, Olsen JB, Wurtz E, Lorentzen K, Salomon H et al Treatment of ureteric colic. Intravenous versus rectal administration of indomethacin. *Br J Urol* 1990; 65:576-579.

Conclusion

- Rectal NSAIDs are an effective form of analgesia for patients with acute renal colic
- Have fewer side effects compared with intravenous NSAIDs.

BETS

3. Intravenous NSAID's in the Management of Renal Colic

Clinical bottom line

Intravenous NSAID's should be the first-line treatment for patients presenting to the ED with acute renal colic.

Holdagate A & Pollock T Nonsteroidal anti-inflammatory drugs (NSAIDs) versus opioids for acute renal colic. *The Cochrane Database of Systematic Reviews* 2004, Issue 1. Art. No.: CD004137.pub3. DOI: 10.1

4. Oral (fast dissolving) piroxicam versus IM diclofenac for renal colic

Clinical bottom line

There is reasonable evidence to suggest the use of oral fast dissolving piroxicam is as effective as IM diclofenac.

References

Supervia A, Pedro-Botet J, Nogues X et al. Piroxicam fast-dissolving dosage form vs diclofenac sodium in the treatment of acute renal colic: a double-blind controlled trial. *British Journal of Urology* 1998;81(1):27-30.

5. Patients' Perceptions of Route of Nonsteroidal Anti-inflammatory Drug Administration and Its Effect on Analgesia

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Conclusions.

No difference in pain perception following the administration of either oral or IM NSAID