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QUESTION 15

Compare and contrast ibuprofen and tramadol as analgesic agents in intensive care

Summary

Have similar analgesic properties
Minimal respiratory depression when used in isolation
Increased side effects in NSAIDs especially renal, GIT and bleeding
Tramadol is more expensive, can be given IV
Both have low potential for abuse and reduced issues with gastic motility (constipation)

	Ibuprofen	Tramadol
	Is a non selective cycloxygenase inhibitor	Is a synthetic opiod
Uses	As an anti-inflammatory, anti pyretic and mild analgesic	As an analagesic
Pharmaceutical	Presented a tablets for oral/PR	As a clear colourless solution or tablets Racemic mixture
Pharmacodynamics	Reversibly inhibits COX 1 and 2 enzymes causing decreased production of prostaglandin precursors	Has agonist properties at all opioid receptors but particularly at mu receptors. 1/5 potency of morphine. Also blocks noradrenaline and serotonin reuptake.
Pharmacokinetics	Rapidly absorbed	75% bioavailability Oral/IV
Absorption	85% bioavailability Oral/PR only onset 30 mins, duration 6 hours	onset 1hr duration 9 hours
Distribution	Very small volume of distribution 0.1L/kg Highly protien bound (99%) pKa 4.5, weak acid therefore mostly unionised	moderate Vd 2.5 L/kg Minimally protien bound 20%
Metabolism	hepatic via oxidation	Heptically via demethylation, glucuronidation and sulfation. active metabolite M1 via CYP2D6
Elimination	half life 2-3 hours excreted as metabolites in urine	half life tramadol 8hrs, active metab 8hrs excreted 30% unchanged in urine
Side effects	Worsen renal function by inhibiting PGE2 and causing vasoconstriction. Increased risk of GI bleeding and ulceration. Impair platelet function May reduce the beneficial effects of aspirin	caution in use with SSRIs, SNRIs, MAOs, TCA less respiratory depression and constipation than morphine. Patients deficient in CYP2D6 have decreased analgesic effect

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