Tramadol

Tramadol is a unique, centrally acting medication that works on multiple neurotransmitters. It is typically prescribed to treat chronic pain, which is moderate-to-severe. It has a wide scope of analgesic uses, ranging from rheumatoid arthritis to fibromyalgia. This drug is a racemic mixture of two tramadol enantiomers; one works to inhibit serotonin reuptake and enhance its release, while the other enantiomer inhibits NE reuptake. Tramadol also acts as a weak opioid and has agonist activity at μ receptors. It is a combination of its opioid actions, various neurotransmitter effects, and influence at NMDA, muscarinic and nicotinic receptors that lead to its analgesic effects. A side effect of this medication is a dose-independant increased risk of seizure, as this drug decreases seizure threshold in patients.

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Indications

Chronic Pain

Crone with Pain-bolts

Chronic pain is the main indication for tramadol use. It is used for moderate to severe pain, and also can be administrated to treat rheumatoid arthritis and fibromyalgia.

Mechanism of Action

Weak Opioid

Weak Poppy-droid

This drug has a weak affinity for μ opioid receptors, producing its analgesic effects. Tramadol has synergistic effects with numerous other receptors, as it also affects nicotinic, muscarinic and NMDA receptors.

Inhibit Serotonin and NE reuptake

Inhibiting-chains on Silver-tonic and North-epi-pen Reuptake-tube

There are two enantiomers of tramadol, which are combined to make a racemic mixture. One enantiomer inhibits 5-HT (serotonin) reuptake and enhances its release. The other enantiomer inhibits NE reuptake. It is the modulation of these various receptors and neurotransmitters in combination that help tramadol exhibit its effects.

Side Effect

Increased Risk of Seizure

Up-arrow Risk with climbing Caesar

Tramadol has been shown to increase the risk of seizure by lowering the threshold in patients. This is a dose-independent side effect.