FENTANYL

Generic name **Trade name**	fentanyl citrate Fentanyl
Classification	Controlled substance schedule II (High abuse potential; medical indications) ▪ Pharmacologic: Synthetic opioid ▪ Therapeutic: Narcotic analgesic
Actions	Potent synthetic opioid structurally related to meperidine with a rapid onset and short duration of action. More potent than morphine and shorter acting than meperidine. Binds with and activates opioid receptors (primarily mu receptors) in the brain and spinal cord to produce analgesia and euphoria. **Increases pain threshold, alters perception of pain**
Advantages	Fentanyl does not affect hemodynamics, SpO_2 or GCS when used appropriately Causes less hypotension than morphine ▪ Histamine assays & skin wheal testing show that clinically significant histamine release rarely occurs even at doses up to 50 mcg/kg (1 mL/kg) ▪ Histamine causes a variety of SE related to **morphine** use: pain & hives at injection site, facial itching, N/V from mucosal edema in the GI tract, and hypotension from vascular effects. ▪ Fentanyl has less emetic activity than morphine. ▪ Blunts stress-related hormonal changes at higher doses. ▪ Short action duration makes it ideal if concerned about masking pain symptoms that may hide illness or injury (peritonitis).
Pharmacodynamics	**Intravenous,** ▪ Onset: almost immediate ▪ Peak: 5 minutes ▪ Duration: 30-40 min **IM (not preferred route)** Onset: 7-8 min Peak: 15 min Duration: 1-2 hours **Intranasal using the MAD device** ▪ Onset: 2 min - reflects good venous outflow from nasal mucosa and bypassing of liver, avoiding hepatic first-pass metabolism. ▪ Peak: 5-10 min: Need to wait at least 5 min before assessing need for additional IN or IV medication. ▪ Duration: 30-40 min ▪ Advantage: IN fentanyl can be given w/o delays inherent in placing an IV. In routine practice the IN drug can be given before IV insertion, resulting in effective earlier analgesia. IV may not be necessary for EMS.
Indications	Patients experiencing pain unrelieved by other palliative or pain relieving measures Pharmacologic and non–pharmacologic (distraction, cold pack) options should reflect a patient–centered approach based on specific needs. Consider pt. status, responder scope of practice, risks/benefits of each strategy. Provide individualized pain mgt regardless of transport interval.
Dose & route	**Critically important**: Fentanyl is dosed in *micro*grams (mcg) ▪ Prefix *milli-* refers to one thousandth; *micro-* refers to one millionth ▪ Potency and dosage are not comparable terms; a 100 mcg dose of fentanyl has roughly the same analgesic effect as 10 mg of morphine. Individualize dose according to age, wt, physical status, & underlying pathological conditions. **IN/IM: Adults and children >2 yrs: 1 mcg/kg slow IVP/IN/IO/IM (max 100 mcg)** **IV: Adult: 25-50 mcg IV** **Peds: 1 mcg/kg; (max initial dose of 100 mcg)** **Pediatric patients < 2 years** ▪ The safety of fentanyl in children < 2 years has not been established.
Reversal agent	naloxone 0.4 mg; may titrate up to 4 mg IVP/IN/IO/IM
Precautions	**Hypoventilation:** Use with great caution in any patient in which respiratory reserve is decreased (emphysema, chronic cor pulmonale, severe obesity). Respiratory depression can cause a reduced ventilatory drive and reduced RR assoc. with a "sighing" pattern. ▪ Alterations in RR and alveolar ventilation may last longer than the analgesic effect. Increased doses = greater decreases in pulmonary exchange. Very large doses may produce apnea. ▪ Monitor VS, resp. depth before & after administration. **Provide continuous SpO_2 and $ETCO_2$ (capnography) monitoring** if available before and after drug administration.

FENTANYL

	▪ **Alcohol & drugs of abuse** - May cause additive CNS & resp. depression and hypotension when used with alcohol, benzodiazepines or CNS depressants. Pts on chronic opioid therapy or with a Hx of opioid abuse may require higher doses to achieve an adequate therapeutic effect. ▪ **Cardiac disease** – may produce bradycardia d/t cholinergic effect; use with caution in pts with known bradydysrhythmias or those given amiodarone or Verapamil. ▪ **Hepatic or renal disease** – Metabolized in the liver. May have prolonged or cumulative clinical effects d/t impaired hepatic metabolism & renal excretion. ▪ Uncontrolled hypothyroidism
Contraindications	▪ Known hypersensitivity to narcotics; opioid intolerant ▪ AMS (GCS <15) or mentation not approp for age/usual state ▪ Significant hypoventilation or respiratory depression ▪ Hypotension ▪ Acute/severe asthma ▪ Myasthenia Gravis ▪ Intermittent pain ▪ Patients on depressant drugs
Use in pregnancy	Category C - inadequate studies to recommend routine use in humans. ▪ Based on animal evidence, it is unlikely that a single use would lead to birth defects. ▪ Not known if drug is excreted in human milk. Given the rapid breakdown, it's unlikely that emergency doses would have an adverse effect on an infant. *Call OLMC for orders.*
Adverse reactions	▪ Nitrous oxide has been reported to produce CV depression when given with high doses of fentanyl. Monitor closely. ▪ Unintentional overdose: PM exceeds recommended dosing without precautionary measures in place to predict obtundation and respiratory depression (capnography)
Drug interactions	▪ **Amiodarone**: Profound bradycardia, sinus arrest and hypotension have occurred when pts receiving Amiodarone were given fentanyl. Monitor carefully. ▪ ***Beta blockers and calcium blockers:*** Use fentanyl with caution in a pt who has received Verapamil since severe hypotension has been reported to occur.
Side effects	**Common** ▪ Dose-related decrease in RR; peak respiratory depressant effect of a single IV dose is 5-15 min following injection ▪ Bradycardia (may reverse w/ atropine) **Uncommon** ▪ N / V (give ondansetron) ▪ Muscular rigidity (chest wall) or myoclonic movements in pts given large doses rapidly possibly due to the effects on dopaminergic transmission in the striatum. Give slow IVP. Muscular rigidity may be associated with reduced pulmonary compliance and/or apnea, laryngospasm or bronchospasm. If chest wall rigidity occurs, Rx w/ assisted or controlled ventilations and reversal with naloxone. ▪ Confusion, dizziness, euphoria, seizures ▪ GI: Produces less sphincter of Oddi spasm and less pronounced increases in biliary pressure than morphine ▪ Blurred vision, miosis (constricted pupils) ▪ Laryngospasm, diaphoresis

KETAMINE HYDROCHLORIDE

Name	Trade names: Ketamine, Ketanest, Ketaset, Ketalar (Pronounced: [KET-a-meen]
Class	Dissociative anesthetic, NMDA antagonist DEA schedule 3 (like hydrocodone) [fentanyl is schedule 2; midazolam is schedule 4] Pregnancy Category not established by FDA; considered category *N BIC* (depending on reference) –consult OLMC
Actions	Exact mechanism unknown Only anesthetic producing analgesia, hypnosis, and amnesic effects • Dissociative anesthetic; produces cataleptic-like state (pt's consciousness is dissociated from their nervous system) and profound analgesia • Action on cerebral cortex & limbic system; acetylcholine, nicotinic receptors & GABA agonist; noncompetitive N- methyl-D-aspartate (NMDA) receptor antagonist, blocks glutamate, binds to opioid mu & sigma receptors at high dose; low doses produce analgesia, modulates central sensitization, hyperalgesia and opioid tolerance; reduces polysynaptic spinal reflexes; at high doses sigma receptor agonist with muscarinic effect • Releases endogenous catecholamines (epinephrine, norepinephrine) • Bronchial smooth muscle relaxant probably due to catecholamine release • Pain: Analgesia outlasts the general anesthetic effect
Abuse potential / withdrawal S&S	Popular recreational "club" drug. Related to tiletamine & phencyclidine (PCP); ketamine has 5%-10% potency of PCP. Methoxetamine, related to ketamine and PCP; is used for dissociative and hallucinogenic properties; taken by oral, nasal, IM, IV, rectal routes. Withdrawal symptoms after chronic abuse include chills, autonomic arousal, lacrimation, restlessness, visual, olfactory, tactile hallucinations, nightmares, psychological cravings.
Indications Adults and children	Non-opioid pain mgt as an alternative to fentanyl and morphine Drug assisted intubation (procedural sedation - induction & maintenance) Other uses: Bronchospasm, migraine headaches, depression, alcoholism, heroin addiction, chronic pain syndrome
Contraindication **Relative contraindications (consider risk/benefit)**	Hypersensitivity Most contraindications related to release of catecholamines↑ HR and BP. Withhold in conditions when elevating BP would be a serious hazard or when significant ↑ in BP might prove harmful • Hypertensive crisis • Under the influence of methamphetamine or similar drug • Symptomatic hyperthyroidism • Aortic dissection • Intracranial hemorrhage • Acute globe injury or glaucoma (↑ intraocular pressure) Breastfeeding: WHO - compatible; Micromedex - infant risk cannot be ruled out
Precaution	Use with caution in patients with active psychosis.
Dose	IN 0.5 mg/kg IN (max initial dose 25 mg; max cumulative dose 100 mg) IM 0.3 mg/kg IM (max initial dose 25 mg) IV Adult: 25 mg slow IVP or infusion in 100 mL NS/LR Peds: 0.25 mg/kg IV (max initial dose 25 mg) (max cumulative dose 100 mg Rapid administration may cause apnea Recommended concentration: 50 mg/mL
Black box warning	• 10 mg/mL (20 mL vial = 200 mg) • *50 mg/mL (10 mL vial = 500 mg) (Preferred)* • 100 mg/mL (5 mL = 500 mg, 10 mL = 1000 mg vials) – do NOT give undiluted **IV injection -100 mg/mL concentration must be diluted w/ equal volume of NS**

KETAMINE HYDROCHLORIDE

Onset	IV/IN: 30-60 seconds IM: 3 to 4 minutes; Bioavailability intranasal: 50%
Duration	IV/IN: 5-15 minutes IM: 12-25 minutes; Dissociative state may last longer >20 min Half-life: alpha/distribution 10-15 min; beta/elimination phase 2.5 hrs; metabolized by liver, excreted in urine
Side effects/ adverse reactions	**Common** **CV**: Transient dose-related tachycardia & HTN due to catecholamine release (occurs shortly after injection, reaches max response (SBP increase 10-50%) within few min, values return to pre-med levels almost immediately and completely within 15 minutes). Benzodiazepine may decrease CV effects. **CNS**: Psychosis (5-30%), increased ICP; dysphoria **MSK**: Rigidity, dystonic reaction, depressed reflexes **Psych**: Emergence reactions (most common pts 15-65 yrs old): psychological manifestations vary in severity from pleasant dream-like state to vivid dreams; anxiety, restlessness, confusion; disorientation, auditory & visual hallucinations, excitement, delirium, irrational behavior; duration lasting 2 - 24 hours. Post administration - minimize stimulation (verbal/auditory, tactile, visual). Emergence reactions may be treated with benzodiazepines, which decreases incidence by 50% **Resp**: Beta-adrenergic and vagolytic properties produce bronchodilation (attractive induction agent for reactive airway disease/asthma) **Less common** **CV**: Dysrhythmias, bradyarrhythmias, hypotension, chest pain, palpitations Catecholamine release ↑ BP, HR, & cardiac output thus ↑ myocardial O_2 demand. Myocardial depressant action may be seen in stressed, catecholamine-deficient pts. If HTN, tachycardia, CAD, HF, cardiac decompensation - monitor closely **CNS:** Lowers seizure threshold; dizziness, memory loss, slurred speech **Eye:** Diplopia, mydriasis (dilated pupils), nystagmus, increased intraocular pressure **Endocrine**: use cautiously if thyrotoxicosis **GI**: Stimulates salivary secretions (hypersalivation) – if severe, atropine may be used to treat Dose reduction may be indicated if hepatic impairment, acute alcohol intoxication, chronic alcohol abuse. Nausea/vomiting - may increase risk of aspiration. **Immune system:** anaphylaxis **MSK:** Spontaneous involuntary movements, increased muscle tone, fasciculations, tonic-clonic movements, trismus (jaw clenching), rhabdomyolysis if prolonged agitation, dystonia may be treated with diphenhydramine **Resp** Depression, apnea, laryngeal spasm, pulmonary edema Laryngeal reflexes may be intact/decreased; avoid mechanical pharynx stimulation when used as monotherapy (without a muscle relaxant) Increased bronchial mucous gland secretion through stimulation of cholinergic receptors, but does not usually require atropine for pretreatment
Interactions	Additive/potentiation effects: Major - Epinephrine, St. John's Wort (theoretical: levothyroxine) Not compatible with IV diazepam • Any medication that stimulates catecholamine release will result in HTN, tachycardia and dysrhythmias • Benzodiazepines, opiates and sedative hypnotics will increase respiratory and CNS depression
Practice pearls	• Because of dissociative state, many patients sedated with Ketamine do not close their eyes • Produces a dose-related increase in HR and BP which makes it an attractive inducing agent for hypotensive patients • Monitor HR, ECG, BP, RR, SpO_2, and $EtCO_2$ closely when administering with other analgesic/sedative medications e. g., midazolam, fentanyl

KETOROLAC

Generic name **Trade name**	Ketorolac Tromethamine
Classification	pyrrolo-pyrrole group of nonsteroidal anti-inflammatory
Actions	Works by reducing hormones that cause inflammation and pain in the body. Inhibits platelets.
Therapeutic benefit	Possesses no sedative or anxiolytic properties; is not an opioid and not habit forming.
Pharmacodynamics	Peak: 2-3 hours
Indications	Short-term mgt of moderately severe acute pain that requires analgesia at the opioid level.
Dose & route	**IM:** Adult (non-pregnant): 30 mg IM Pediatric (2-16 years old): 1 mg/kg IM (max dose 30 mg) **IV**: (one-time dose only) Adult (non-pregnant): 15 mg IV Peds (2-14 years old): 0.5 mg/kg IV (max dose 15 mg)
Precautions	Consult online medical control if patient has a history of any liver disease, kidney disease, blood disorders, ulcers, heart disease, alcohol use, high blood pressure, eye disease, asthma, nasal polyps, aspirin/NSAID allergy (e.g., ibuprofen, celecoxib).
Contraindications	• NOT indicated for minor or chronic painful conditions. • Hypotension (due to renal toxicity) • Patients with hemorrhage, incomplete hemostasis and those at high risk of bleeding • NSAID Allergy; ASA-sensitive asthma; • Severe renal disease or kidney transplant • Blood clotting disorder • Closed head injury or bleeding in brain • Gastric ulcer or a history of stomach or intestinal bleeding • Patient needing surgery • Open fracture or fracture deformities • If breast-feeding a baby • Patients currently receiving aspirin or NSAIDs because of the cumulative risk of inducing serious NSAID-related side effects. • Caution: if dehydrated or taking ACEIs or ARBs
Use in pregnancy	Contraindicated: may adversely affect fetal circulation and inhibit uterine contractions
Side effects	Acute kidney injury Stomach upset is the most common side effect. Can cause peptic ulcers, gastrointestinal bleeding and/or perforation of the stomach Nausea, vomiting, bloating, gas, loss of appetite, sweating, dizziness, drowsiness, blurred vision, dry mouth, irritation at the injection site and abnormal tastes may also occur.

MORPHINE SULFATE

Generic name **Trade name**	Morphine sulfate
Classification	Controlled substance schedule II (High abuse potential; medical indications) ▪ Pharmacologic: Natural opioid (extracted from poppy plant) ▪ Therapeutic: Narcotic analgesic
Actions	Prototype narcotic analgesic. New opiate efficacy and SE profiles often compared to morphine. Binds with and activates opioid receptors (primarily mu receptors) in the brain and spinal cord to produce analgesia and euphoria. Affects many organ systems.
Advantages	Short action duration makes it ideal if concerned about masking pain symptoms that may hide illness or injury.
Pharmacodynamics	**Intravenous,** ▪ Onset: almost immediate ▪ Peak: minutes ▪ Duration: 30-60 min **IM (not preferred route)** Onset based on absorption and distribution Peak: 15 min Duration: hours.
Indications	Patients experiencing moderate to severe pain without known contraindications Select an opioid based on degree of pain, previous responses to opioids, side effects and how a particular drug may interact with a patient's disease state(s).(risk/benefit analysis) Provide individualized pain mgt regardless of transport interval.
Dose & route	**Critically important**: Individualize dose according to age, wt, physical status, & underlying pathological conditions. **IM**: 0.1 mg/kg IM (max initial dose 15 mg) **IV:** Adult: 5 mg IV Peds: 0.1 mg/kg IV (max initial dose 5 mg) **Less likely to cause respiratory depression or ↓ BP if given slowly.**
Reversal agent	naloxone
Precautions	**Hypoventilation:** Use with great caution in any patient in which respiratory reserve is decreased (emphysema, chronic cor pulmonale, severe obesity). Respiratory depression can cause a reduced ventilatory drive and reduced RR assoc. with a "sighing" pattern. ▪ Alterations in RR and alveolar ventilation may last longer than the analgesic effect. Increased doses = greater decreases in pulmonary exchange. Very large doses may produce apnea. ▪ Monitor VS, resp. depth before & after administration. **Provide continuous SpO_2 and $ETCO_2$ (capnography) monitoring** if available before and after drug administration. ▪ Normal analgesic doses may suppress cough reflex and dry secretions; histamine release causes bronchoconstriction. Use with caution in patient with asthma. ▪ **Alcohol & drugs of abuse** - May cause additive CNS & resp. depression and hypotension when used with alcohol, benzodiazepines or CNS depressants. Pts on chronic opioid therapy or with a Hx of opioid abuse may require higher doses to achieve an adequate therapeutic effect. ▪ **Cardiac disease** – use with caution in pts with known bradydysrhythmias or those given amiodarone or Verapamil. ▪ **Hepatic or renal disease** – Prolonged clinical effects d/t impaired hepatic metabolism & renal excretion. ▪ Uncontrolled hypothyroidism ▪ May make physical exam difficult in the presence of traumatic brain injury due to miosis, vomiting, and mental clouding.
Contraindications	▪ Take a thorough allergy history; known hypersensitivity to narcotics; opioid intolerant ▪ AMS (GCS <15) or mentation not appropriate for age/usual state ▪ Significant hypoventilation or respiratory depression ▪ Hypotension ▪ Patients on other CNS depressant drugs
Use in pregnancy	Category C - inadequate studies to recommend routine use in humans. ▪ Based on animal evidence, it is unlikely that a single use would lead to birth defects. ▪ Not known if drug is excreted in human milk. Given the rapid breakdown, it's unlikely that emergency doses would have an adverse effect on an infant.

MORPHINE SULFATE

Adverse reactions	▪ Unintentional overdose: Exceeding recommended dosing without precautionary measures in place to predict obtundation and respiratory depression (capnography)
Drug interactions	▪ If a patient claims to be allergic to an opioid and alternative opioid should be chosen from a different classification. Allergenicity is most common in naturally occurring compounds due to their potent histamine release.
Side effects	**True anaphylaxis rare** **Cardiovascular**: Therapeutic doses have minimal effect on BP, HR, or cardiac rhythm when patients are supine. Orthostatic hypotension may occur due to peripheral vasodilation. • Vasoactive effects involve depression of the vasomotor center in the medulla and the release of histamine. Produces decrease on myocardial O_2 demand in ischemic cardiac patients making it often the drug of choice for treating pain associated with an AMI. • Large doses may produce bradycardia due to vagal stimulation. (may reverse w/ atropine) **Respiratory**: Depresses respirations through a direct effect on the brainstem respiratory centers. Can depress cough reflex through direct effect on the cough center in the medulla including all phases of respiratory activity: rate, minute volume, tidal exchange, and may produce irregular and periodic breathing. Maximal respiratory depression occurs within 5 to 10 minutes after IV administration or within 30 minutes of IM administration. **CNS**: drowsiness, dizziness, changes in mood (euphoria), and mental cloudiness. **Pupils:** constriction (miosis) from excitatory action on the oculomotor nerve (CN III) **GI**: decreases motility of entire GI tract, decreases gastric, biliary, and pancreatic secretions and causes spasms of the sphincter of Odd (not the best choice to use for cholecystitis). Causes nausea through direct stimulation of the chemoreceptor trigger zone in the medulla. Rx with ondansetron. **GU:** Inhibits the urinary voiding reflex and causes in increased external sphincter tone. Some patients may need catheterization following therapeutic doses of morphine. Tolerance to this effect usually develops. **Musculoskeletal:** High doses can produce muscular rigidity due to actions a opioid receptors in the substantia nigra and striatum. **Note on histamine release**: Histamine causes a variety of SE related to morphine use: pain & hives at injection site, facial itching, N/V from mucosal edema in the GI tract, and hypotension from vascular effects.

NITROUS OXIDE (N_2O)

Generic name **Trade name**	Nitrous oxide Nitronox
Classification	Ultra-short-acting nonhalogenated inhalation sedative/analgesic agent first discovered to have analgesic properties in the late 1700s. Used by a dentist in the mid 1800s. First used in EMS in US in 1977. Lay people know it as "laughing gas". Nitrous oxide is formed by the decomposition of ammonium nitrate to N_2O and water when heated to high temps. Gas is sweet smelling, non-irritating and colorless. It can be stored in compressed form in cylinders. Only inorganic gas used as an anesthetic in humans.
Actions	CNS depressant; dulls the senses, blunts perception of painful stimuli, produces a carefree attitude. Thought to potentiate release of endogenous endorphins that react with opioid receptors in the CNS to elevate pain threshold & create a feeling of relaxation and euphoria.
Therapeutic benefit	Little effect on CV system – mild vasodilation; HR & BP remain unchanged. No direct effect on skeletal muscle. **Does not require an IV**
Pharmacodynamics	Onset & duration: 2-5 minutes – thus almost immediate relief of pain. Equivalent analgesic effect estimated to require 10-15 mg of morphine. Metabolized & excreted in lungs.
Indications	Temporary relief of pain due to isolated extremity injury, burns, renal colic, cardiac chest pain when narcotics are contraindicated. Can use to reduce anxiety during procedures (IV access).
Dose & route	Self-administered: Pt must be alert, able to follow directions and hold the demand valve mask to their face. Dose is adequate when mask drops out of their hand.
Packaging	**Nitronox**: 50/50 preset blended mixture of nitrogen and oxygen – can't adjust ratios. Automatically shuts off N_2O if oxygen supply is depleted & automatically delivers 100% O_2 if nitrogen supply is depleted. Alarms activate if faults detected. Special connectors prevent disconnection of gas supply hoses. Scavenging system prevents leak into ambulance.
Precautions	Abuse by EMS personnel
Contraindications	AMS, facial trauma – can't hold mask to face. ▪ It diffuses into spaces containing air 34X faster than nitrogen can diffuse out - leading to potentially dangerous airspace expansion. Don't use in pneumothorax, bowel obstruction, intracranial injury etc. Preexisting hypoxia, COPD. ▪ Decompression sickness (bends caused by N_2 gas bubbles in the blood) ▪ Never use in confined space or when administration set's scavenging system appears to be nonfunctional – gas will accumulate, displace O_2 and overcome rescuers
Use in pregnancy	Crosses placenta; can cause fetal depression particularly in the 1st trimester.
Adverse reactions	Nitrous oxide has been reported to produce CV depression when given with high doses of fentanyl. Monitor closely.
Side effects	Good safety profile ***Diffusion hypoxia*** can occur when Rx with N_2O is terminated it pt breathes only RA. Rapid diffusion of gas back to the lungs causes alveolar hypoxia. S/S: nausea, lethargy, dizziness (hangover). Prevent by giving O_2 15 L for several min after conclusion of N_2O therapy

ONDANSETRON (on dan' se tron)

Generic name **Trade name**	ondansetron Zofran
Classification	Antiemetic (reduces nausea and vomiting)
Actions	5-Hydroxytryptamine (HT3) receptor antagonists Blocks the action of serotonin, a natural substance that may cause nausea and vomiting.
Therapeutic benefit	Decreases the need for IVF and hospital admissions in children presenting to the ED for vomiting from gastroenteritis. Has been safely used in children as young as 1 month old for the treatment of postoperative or chemotherapy-associated nausea & vomiting and now, gastroenteritis.
Pharmacodynamics	**Onset of action**: 10 min **Duration of action** 2-4 hours (depending on age and liver function)
Indications	Nausea/vomiting
Dose & route	**Adults**: 4 mg oral dissolve tablet or 4 mg IVP. May repeat X 1 to a total of 8 mg PO or IVP. **Children:** 0.15 mg/kg up to a total dose of 4 mg IVP over at least 30 sec; or 4 mg ODT ▪ Remove tablet from package just before giving dose. ▪ To open package, do NOT try to push the tablet through the foil backing of the blister. Use dry hands to peel back the foil backing. ▪ Gently remove tablet and immediately place on top of pt's tongue. ▪ Tablet will dissolve in a few sec and can be swallowed with saliva.
Precautions	Phenylketonuria (PKU) pts: ODT contains aspartame that forms phenylalanine**.**
Contraindications	Hypersensitivity
Side effects	Rare: Transient blurred vision after rapid IV infusion HA, lightheadedness Sedation Diarrhea in children

How supplied Oral dissolve tablets (ODT) (4 mg), solution for IV push (4 mg/2 mL)