

ACTIVE LEARNING TEMPLATE: *Medication*

STUDENT NAME _____

MEDICATION Epinephrine

REVIEW MODULE CHAPTER _____

CATEGORY CLASS Adrenergic

PURPOSE OF MEDICATION

Expected Pharmacological Action

Results in the accumulation of cyclic adenosine monophosphate (cAMP) at beta-adrenergic receptors. Affects both beta1(cardiac)-adrenergic receptors and beta2(pulmonary)-adrenergic receptor sites. Produces bronchodilation. Also has alpha-adrenergic agonist properties, which result in vasoconstriction. Inhibits the release of mediators of immediate hypersensitivity reactions from mast cells.

Therapeutic Use

Management of reversible airway disease due to asthma or COPD.
Management of severe allergic reactions.
Management of cardiac arrest (unlabeled).
Management of upper airway obstruction and croup (racemic epinephrine).
Adjunct in the localization/prolongation of anesthesia.

Complications

CNS: nervousness, restlessness, tremor, headache, and insomnia.
Resp: PARADOXICAL BRONCHOSPASM (Excessive use of inhalers).
CV: angina, arrhythmias, hypertension, and tachycardia.
GI: nausea, vomiting.
Endocrine: hyperglycemia.

Contraindications/Precautions

Contraindicated in: Hypersensitivity to adrenergic amines; Some products may contain bisulfites or fluorocarbons (in some inhalers) and should be avoided in patients with known hypersensitivity or intolerance.

Use Cautiously in: Cardiac disease (angina, tachycardia, MI); Hypertension; Hyperthyroidism; Diabetes; Cerebral arteriosclerosis; Glaucoma (except for ophthalmic use); Excessive use may lead to tolerance and paradoxical bronchospasm (inhaler)

Interactions

Drug-Drug: Concurrent use with other adrenergic agents will have additive adrenergic side effects. Use with MAO inhibitors may lead to hypertensive crisis. Beta blockers may negate therapeutic effect. Tricyclic antidepressants enhance pressor response to epinephrine.

Drug-Natural Products: Use with caffeine-containing herbs (cola nut, guarana, mate, tea, coffee) increases stimulant effect.

Evaluation of Medication Effectiveness

Prevention or relief of bronchospasm.
Increase in ease of breathing.
Prevention of bronchospasm or reduction of frequency of acute asthma attacks in patients with chronic asthma.
Prevention of exercise-induced asthma.
Reversal of signs and symptoms of anaphylaxis.
Increase in cardiac rate and output, when used in cardiac resuscitation.
Increase in BP, when used as a vasopressor.
Localization of local anesthetic.
Decrease in sinus and nasal congestion.

Medication Administration

Subcutaneous
Local/Spinal
Intramuscular
Intravenous
Inhalation
Intracardiac
Intratracheal
Intraosseous (as part of advanced cardiac life support (ACLS) and pediatric advanced life support (PALS))

Nursing Interventions

Bronchodilator: Assess lung sounds, respiratory pattern, pulse, and BP before administration and during peak of medication. Note amount, color, and character of sputum produced, and notify health care professional of abnormal findings.

Monitor pulmonary function tests before and periodically during therapy. Observe for paradoxical bronchospasm (wheezing). If condition occurs, withhold medication and notify health care professional immediately.

Assess for hypersensitivity reaction (rash; urticaria; swelling of the face, lips, or eyelids). If condition occurs, withhold medication and notify health care professional immediately.

Vasopressor: Monitor BP, pulse, ECG, and respiratory rate frequently during IV administration. Continuous ECG, hemodynamic parameters, and urine output should be monitored continuously during IV administration.

Client Education

Take medication exactly as directed.
If on a scheduled dosing regimen, take a missed dose as soon as possible; space remaining doses at regular intervals.

Do not double doses. Caution patient not to exceed recommended dose; may cause adverse effects, paradoxical bronchospasm, or loss of effectiveness of medication.

Contact health care professional immediately if shortness of breath is not relieved by medication or is accompanied by diaphoresis, dizziness, palpitations, or chest pain.

Consult health care professional before taking any OTC medications or alcoholic beverages concurrently with this therapy. Caution patient also to avoid smoking and other respiratory irritants.