
AUTHORIZED BY: CPC Quality of Care Committee
ISSUE DATE: June 2002
CATEGORY: ACP Medications
TITLE: **Adenosine**

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- Other Names:**
- Adenocard
- Classifications:**
- Antiarrhythmic
- Pharmacodynamics:**
- An endogenous nucleoside found in all cells of the body
 - Slows conduction through the AV node, interrupts AV-nodal re-entry pathways and can restore normal sinus rhythm in patients with symptomatic supraventricular tachycardias including Wolf-Parkinson-White Syndrome (WPW)
- Onset:**
- Rapid
- Peak:**
- 60 sec.
- Duration:**
- 1 - 2 min.
- Indications and Clinical use:**
- Conversion to sinus rhythm of paroxysmal supraventricular tachycardia (PSVT), including that associated with accessory bypass tracts (Wolff-Parkinson-White syndrome)
 - To aid in the diagnosis of broad or narrow complex supraventricular tachycardia
- Contraindications:**
- Patients taking Dipyridamole or Carbamazepine
 - Second or third-degree AV block, or known sick sinus syndrome (except in patients with a functioning artificial pacemaker)
 - Patients with sinus tachycardia, atrial fib or atrial flutter
 - Symptomatic bradycardia (except in patients with a functioning artificial pacemaker)
 - Known hypersensitivity to adenosine
- Precautions:**
- History of asthma/COPD
 - Since Adenosine exerts its effect by decreasing conduction through the AV node, it may produce a short lasting first, second, or third-degree heart block
 - At the time of conversion to normal sinus rhythm, about 55% of patients will experience a variety of new ECG rhythms including premature ventricular contractions, atrial premature contractions, sinus bradycardia, sinus tachycardia, skipped beats, AV nodal block
- Adverse Reactions:**
- Non-cardiac: facial flushing, dyspnea, headache, lightheadedness
 - Cardiac: chest pain, 1st, 2nd or 3rd degree heart block, transient asystole, varied atrial and ventricular arrhythmias
 - Feeling of impending doom
 - Adverse reactions are generally transient and self limiting
 - resolve within one minute of drug administration, and usually do not require intervention
 - Bronchospasm

SUBJECT: **ADENOSINE**

- Drug Interactions:**
- Digoxin and Verapamil use may be rarely associated with ventricular fibrillation when combined with Adenosine
 - Due to antagonistic effects, larger doses of Adenosine may be required or Adenosine may not be effective in the presence of methylxanthines such as Theophylline or Caffeine.
 - Adenosine effects are potentiated by Dipyridamole (Persantine)
 - Carbamazepine (Tegretol) may produce a higher degree of AV nodal block when combined with Adenosine
- Special Considerations:**
- Direct IV rapid bolus (1 - 2 sec.), preferably via large bore forearm or ACF site due to short half life (< 10 seconds) and followed by NS 10 cc flush
 - Adenosine does not convert atrial flutter, atrial fibrillation or ventricular tachycardia to normal sinus rhythm
 - Store syringes at room temperature as Adenosine will crystallize when stored in refrigerator (will dissolve when warmed to room temperature)
 - Protect from light
- Preparations:**
- 6 mg/2 ml preload or 12 mg/2ml preloads
 - Various vials
- References:**
- Compendium of Pharmaceuticals and Specialties 2013
 - Ontario Provincial ALS Patient Care Standards (ACP), Version 4.5
 - 2015 AHA Guidelines: ACLS

NOTE: *The information contained herein does not supersede or negate the MoHLTC Provincial Medical Directives and should only serve as general information about the medication itself. For medication dosages, please refer to the current version of the Ontario Provincial ALS Patient Care Standards.*