

# Southern Illinois Regional EMS System

## JJ-1 ADENOSINE (ADENOCARD)

1. Class:
  - 1.1. Endogenous nucleoside, miscellaneous antidysrhythmic.
2. Description:
  - 2.1. Adenosine primary is formed from the breakdown of adenosine triphosphate. Adenosine triphosphate and adenosine are found in every cell of the human body and have a wide range of metabolic roles. Adenosine slows supraventricular tachycardias by decreasing electrical conduction through the atrioventricular node without causing negative inotropic effects. It also acts directly on sinus pacemaker cells and vagal nerve terminals to decrease chronotropic (heart rate) activity. Adenosine is recommended as the drug of choice for paroxysmal supraventricular tachycardia and can be used diagnostically for stable, wide-complex tachycardias of unknown type, following two doses of Lidocaine.
3. Onset and Duration:
  - 3.1. Onset: Immediate.
  - 3.2. Duration: 10 Seconds.
4. Indications:
  - 4.1. First drug for most forms of narrow-complex paroxysmal supraventricular tachycardia and dysrhythmias associated with bypass tracts such as Wolff-Parkinson-White syndrome in adults and pediatric patients.
5. Contraindications:
  - 5.1. Second - or third - degree atrioventricular block or sick sinus syndrome.
  - 5.2. Hypersensitivity to adenosine.
  - 5.3. Atrial flutter, atrial fibrillation, ventricular tachycardia:
    - 5.3.1. Adenosine is not effective in converting these rhythms to sinus rhythm.
6. Adverse Reactions:
  - 6.1. Light-headedness.
  - 6.2. Paresthesias.
  - 6.3. Headache.
  - 6.4. Diaphoresis.
  - 6.5. Palpitations.
  - 6.6. Chest pain.
  - 6.7. Flushing.
  - 6.8. Hypotension.
  - 6.9. Shortness of breath.
  - 6.10. Transient periods of sinus bradycardia, sinus pause, or bradyasystole.
  - 6.11. Ventricular ectopy:
    - 6.11.1. Fibrillation.
    - 6.11.2. Flutter.
    - 6.11.3. Tachycardia.
    - 6.11.4. Torsades de pointes.
  - 6.12. Nausea.
  - 6.13. Metallic taste.

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(continued)

7. Drug Interaction:
  - 7.1. Methylxanthines (e.g. caffeine and theophylline) antagonize the action of adenosine.
  - 7.2. Dipyridamole potentiates the effect of adenosine; reduction of adenosine dose may be required.
  - 7.3. Carbamazepine may potentiate the atrioventricular-nodal blocking effect of adenosine.
8. How Supplied:
  - 8.1. Parenteral for IV injection.
  - 8.2. 3mg/ml in 2ml and 5ml flip-top vials.
9. Dosage and Administration:
  - 9.1. Adult:
    - 9.1.1. Initial dose - 6mg rapid IV bolus over 1-3 seconds, followed by a 20ml saline flush; elevate extremity.
    - 9.1.2. Repeat dose – If no response is observed after 1-2 minutes, administer a 12mg repeat dose in the same manner; may repeat once in 1-2 minutes (max single dose – 12mg).
  - 9.2. Pediatric:
    - 9.2.1. Initial dose 0.1mg/kg; may be doubled once (max first dose – 6mg); rapid IV bolus, followed by a 5ml saline flush.
10. Special Considerations:
  - 10.1. Pregnancy safety Category C.
  - 10.2. Place patient in mild reverse Trendelenburg position before drug administration.
  - 10.3. A brief period of asystole (up to 15 seconds) following conversion, followed by resumption of normal sinus rhythm, is common after rapid administration.
  - 10.4. Patients taking theophylline may require larger doses of adenosine; cardiac transplant recipients may require only a small dose.
  - 10.5. Adenosine may produce bronchoconstriction in patients with asthma and in patients with bronchopulmonary disease.
  - 10.6. Monitor electrocardiogram during administration.