

ADENOSIN

Class: Antiarrhythmic Agent, Miscellaneous.

Indications:

Labeled Indications:

Treatment of paroxysmal supraventricular tachycardia (PSVT) including that associated with accessory bypass tracts (Wolff-Parkinson-White syndrome); when clinically advisable, appropriate vagal maneuvers should be attempted prior to adenosine administration; **not effective for conversion of atrial fibrillation, atrial flutter, or ventricular tachycardia**

Pharmacologic stress agent used in myocardial perfusion thallium-201 scintigraphy

Unlabeled: ACLS/PALS Guidelines (2010): Stable, narrow-complex regular tachycardias; unstable narrow-complex regular tachycardias while preparations are made for synchronized direct-current cardioversion; stable regular monomorphic, wide-complex tachycardia as a therapeutic (if SVT) and diagnostic maneuver

Dosage:

-Paroxysmal supraventricular tachycardia (Adenocard®): I.V. (rapid, over 1-2 seconds, via peripheral line; see **Note**): Initial: 6 mg; if not effective within 1-2 minutes, 12 mg may be given; may repeat 12 mg bolus if needed (maximum single dose: 12 mg). Follow each dose with 20 mL normal saline flush. **Note:** Initial dose of adenosine should be reduced to 3 mg if patient is currently receiving carbamazepine or dipyridamole, has a transplanted heart or if adenosine is administered via central line (ACLS, 2010).

-Pharmacologic stress testing (Adenoscan®): I.V.: Continuous I.V. infusion via peripheral line: 140 mcg/kg/minute for 6 minutes using syringe or volumetric infusion pump; total dose: 0.84 mg/kg. Thallium-201 is injected at midpoint (3 minutes) of infusion.

-Acute vasodilator testing in pulmonary artery hypertension (unlabeled use)
(Adenoscan®): I.V.: Initial: 50 mcg/kg/minute increased by 50 mcg/kg/minute every 2 minutes to a maximum dose of 500 mcg/kg/minute (Schrader, 1992) **or** to a maximum dose of 250 mcg/kg/minute (McLaughlin, 2009); acutely assess vasodilator response

Renal Impairment:

No dosage adjustment provided in manufacturer's labeling. However, adenosine is not renally eliminated.

Hepatic Impairment:

No dosage adjustment provided in manufacturer's labeling. However, adenosine is not hepatically eliminated.

Available dosage form in the hospital: 6MG/2ML ampule , 10MG/2ML ampule.

Common side effect:

- **Atrial fibrillation/flutter:** There have been reports of atrial fibrillation/flutter when administered to patients with paroxysmal supraventricular tachycardia (PSVT) and may be especially problematic in patients with PSVT and underlying Wolff-Parkinson-White syndrome; has also been reported in patients with or without a history of atrial fibrillation undergoing myocardial perfusion imaging with adenosine infusion.
- **Conduction disturbances:** Adenosine decreases conduction through the AV node and may produce first-, second-, or third-degree heart block. Patients with pre-existing SA nodal dysfunction may experience prolonged sinus pauses after adenosine; use caution in patients with first-degree AV block or bundle branch block; use is contraindicated in patients with high-grade AV block, sinus node dysfunction, or symptomatic bradycardia (unless a functional artificial pacemaker is in place). Rare, prolonged episodes of asystole have been reported, with fatal outcomes in some cases.
- **Hypotension:** May produce profound vasodilation with subsequent hypotension. When used as a bolus dose (PSVT), effects are generally self-limiting (due to the short half-life of adenosine). However, when used as a continuous infusion (pharmacologic stress testing), effects may be more pronounced and persistent, corresponding to continued exposure. Use infusions with caution in patients with autonomic dysfunction, carotid stenosis (with cerebrovascular insufficiency), uncorrected hypovolemia, pericarditis, pleural effusion and/or stenotic valvular heart disease; discontinue infusion in patients who develop persistent or symptomatic hypotension.
- **Proarrhythmic effects:** Monitor for proarrhythmic effects (eg, polymorphic ventricular tachycardia) during and shortly after administration/termination of arrhythmia. The benign transient occurrence of atrial and ventricular ectopy is common upon termination of arrhythmia.

Pregnancy Risk Factor: C