

ADENOSINE

Trade Name	Adenocor																
Class	Cardiac anti-arrhythmic																
Mechanism of Action	Active ATP metabolite. Depresses SA node automaticity and AV node conduction; no negative inotropic effect.																
Indications	Diagnosis and acute treatment of sustained tachyarrhythmias																
Contraindications	Wolf-Parkinson-White syndrome ⁵ . 2° or 3° AV block or sick sinus syndrome ⁷ .																
Supplied As	3mg/mL solution (2mL vials containing 6mg Adenosine in 0.9% saline and water for injection)																
Dilution	<p>Check to see that solution is clear prior to administration.</p> <p>Babies <2kg</p> <table border="1"> <thead> <tr> <th>Drug</th> <th>0.9% Saline Added</th> <th>Final Volume</th> <th>Concentration</th> </tr> </thead> <tbody> <tr> <td>1mL (3mg)</td> <td>9mL</td> <td>10mL</td> <td>300microgram/mL</td> </tr> </tbody> </table> <p>Babies ≥ 2kg</p> <table border="1"> <thead> <tr> <th>Drug</th> <th>0.9% Saline Added</th> <th>Final Volume</th> <th>Concentration</th> </tr> </thead> <tbody> <tr> <td>1mL (3mg)</td> <td>2mL</td> <td>3mL</td> <td>1000microgram/mL</td> </tr> </tbody> </table> <p>Dilute immediately prior to use due to short half life.</p>	Drug	0.9% Saline Added	Final Volume	Concentration	1mL (3mg)	9mL	10mL	300microgram/mL	Drug	0.9% Saline Added	Final Volume	Concentration	1mL (3mg)	2mL	3mL	1000microgram/mL
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Dosage	<p>Initial dose: 100microgram/kg</p> <p>Repeat dose: Stepwise increase dose in 100 microgram/kg increments</p> <p>ie: 200 microgram/kg, then 300 microgram/kg</p> <p>Doses up to 500 microgram/kg may be needed (D/W Cardiologist if not successful at 300 microgram/kg)</p>																
Interval	May repeat every 20 seconds to 2 minutes if SVT persists.																
Administration	<p>Rapid IV bolus (1-2 seconds): ideally via an IV sited as proximal to the heart as possible (eg brachial vein).</p> <p>Infuse as close to IV site as possible and flush immediately with 0.9% sodium chloride.</p> <p>Avoid administration via an umbilical artery catheter if possible as the drug will be metabolised prior to delivery to the heart.</p> <p>Intraosseous administration has been reported as successful</p>																

Compatible With	<p>Solutions:</p> <p>0.9% sodium chloride; 5% glucose, lactated ringer's ⁸.</p> <p>Y-site: abciximab, no information available on compatibility with any other meds or TPN/Lipid</p>
Incompatible With	N/A
Interactions	<p>Dipyridamole significantly increases activity of adenosine by up to 400%. It is recommended that dipyridamole be discontinued for 24 hours prior to administration of adenosine. ⁽¹⁶⁾</p> <p>Aminophylline, caffeine and theophylline are competitive antagonists of adenosine. If possible discontinue 24 hours prior to administration of adenosine otherwise expect that larger doses of adenosine may be required. ^(7,16)</p>
Monitoring	Continuous ECG and BP monitoring.
Stability	Discard diluted solution and vial after each episode of treatment (contains no preservative).
Storage	Room temperature (refrigeration causes crystallization). If crystallised, allow to warm to room temperature to dissolve crystals ⁸ .
Adverse Reactions	<p>Flushing, dyspnoea, arrhythmias, bradycardia and irritability common but resolve within 1 minute.</p> <p>Transient (<1 min) arrhythmias may occur during transition from SVT to sinus rhythm.</p> <p>Recurrence of SVT in \pm 30%.</p> <p>Apnoea reported in one preterm infant.</p>
Metabolism	<p>Rapidly metabolised by all cells of the body.</p> <p>Half life 10 seconds</p>
Comments	Digoxin, quinidine, beta blockers, calcium channel blockers and ace inhibitors have been reported to be safely used in combination with adenosine. ⁽¹⁶⁾
References	<ol style="list-style-type: none"> 1) Young T.E. et al. Neofax 2000; 88. 2) Ozer S. et al. "Adenosine- and verapamil-sensitive ventricular tachycardia in the newborn." Pacing Clin 3) Electrophysiol. 24(5):898-901, 2001 May. 4) Patole S. et al. "Improved oxygenation following adenosine infusion in persistent pulmonary hypertension of the newborn." Biol Neonate. 74(5):345-50, 1998 Nov. 5) Paret G. et al. "Adenosine for the treatment of paroxysmal supraventricular tachycardia in full-term and preterm newborn infants." Am J Perinatol. 13(6):343-6, 1996 Aug. 6) Mulla N. et al. "Ventricular fibrillation following adenosine therapy for supraventricular tachycardia in a neonate with concealed Wolff-Parkinson-White syndrome treated with digoxin." Pediatr Emerg Care. 11(4):238-9, 1995 Aug. 7) Clarke B. et al. "Rapid and safe termination of Supraventricular tachycardia in children by adenosine." Lancet.1(8528):299-301, 1987 8) Neonatal Pharmacopoeia; Royal Women's Hospital;

	<p>9) Melbourne 1st Edition 1998. 10) Trissel LA, Handbook on Injectable Drugs, 12th Ed, 2003 11) Personal communication with Dr Jon Skinner – Cardiologist Akld July 2012 on current dosing regime 12) Adenocor product information, Sanofi 2015. 13) Notes on Injectable Drugs 7th Edition, NZHPA. 14) www.micromedexsolutions.com 15) Neofax in www.micromedexsolutions.com 16) Australasian Neonatal Medicines Formulary www.anmfonline.org</p>										
Updated By	<table> <tr> <td>J Klimek</td> <td>September 2003</td> </tr> <tr> <td>P Schmidt, B Robertshawe</td> <td>March 2006</td> </tr> <tr> <td>A Lynn, B Robertshawe</td> <td>June 2012 (re-order profile)</td> </tr> <tr> <td>A Lynn, M Wallenstein, B Robertshawe, A Evison</td> <td>May 2020 (review and update)</td> </tr> <tr> <td>A Lynn, B Robertshawe</td> <td>March 2023 (review and update)</td> </tr> </table>	J Klimek	September 2003	P Schmidt, B Robertshawe	March 2006	A Lynn, B Robertshawe	June 2012 (re-order profile)	A Lynn, M Wallenstein, B Robertshawe, A Evison	May 2020 (review and update)	A Lynn, B Robertshawe	March 2023 (review and update)
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