

# Adenosine

## Classification

Antiarrhythmic and endogenous nucleoside

## Indications

- ACP: Conversion and termination of supraventricular tachycardias

## Contraindications

- Hypersensitivity
- Second- or third-degree AV node block or sick sinus syndrome in patients without an artificial pacemaker

## Adult dosages

Adenosine must be given very quickly into a proximal vein as close to central circulation as possible. Attach both the adenosine and a 20-30 mL saline flush to the same IV line. Push the drug as quickly as possible and follow its administration immediately with the saline flush to ensure the medication clears the intravenous tubing. Maintain pressure on the downstream plunger during administration.

Ensure an ECG is being recorded during administration of adenosine.

- ACP: Termination of SVT/PSVT

- Initial dose: 6 mg IV rapid push
- Follow-up dose: 12 mg IV rapid push

## Pediatric Considerations And Dosing

Adenosine must be given very quickly into a proximal vein as close to central circulation as possible. Attach both the adenosine and a 20-30 mL saline flush to the same IV line. Push the drug as quickly as possible and follow its administration immediately with the saline flush to ensure the medication clears the intravenous tubing. Maintain pressure on the downstream plunger during administration.

Ensure an ECG is being recorded during administration of adenosine.

[Follow weight-based dosing.](#)

- ACP: Termination of SVT/PSVT

- Initial dose: 0.1 mg/kg to maximum of 6 mg IV rapid push
- Follow-up dose: 0.2 mg/kg to maximum of 12 mg IV rapid push

## Mechanism Of Action

Adenosine slows the conduction of electrical impulses through the atrioventricular node.

## Pharmacokinetics

Once administered intravenously, adenosine is rapidly cleared from circulation.

- Onset and peak: rapid
- Duration: 1-2 minutes
- Half-life: 10-20 seconds

## Adverse Effects

The most common adverse effects are lightheadedness, flushing, shortness of breath, chest pressure, and nausea. These effects are normal and generally self-limiting. Patients should be warned that these sensations may occur.

## Overdose

Because of adenosine's extremely short lifespan once administered, it is very unlikely for an overdose to occur.

## Warning And Precautions

Arrhythmias during conversion from SVT/PSVT are common and usually transient, however it is imperative that resuscitation equipment be immediately available.

Rare cases of ventricular fibrillation have been reported following adenosine administration, and has been associated with patients taking digoxin, or digoxin and verapamil. Caution should be used in these patients. Consultation with CliniCall is encouraged.

Adenosine has the potential to worsen bronchoconstriction in patients with chronic obstructive pulmonary disease and asthma.

## Drug Interactions

- Methylxanthines (such as caffeine and theophylline) competitively antagonize the action of adenosine. Larger doses of adenosine may be required in patients taking these types of medications.
- Carbamazepine may produce higher degrees of heart block during adenosine use
- Dipyridamole potentiates the effects of adenosine, requiring smaller doses

In these cases, consultation with CliniCall is recommended.

