For the use only of a Registered Medical Practitioner or a Hospital or a Laboratory only

Rx Adenosine Injection IP

AMERICAN
ADENOCAN
Injection

FOR IV USE ONLY

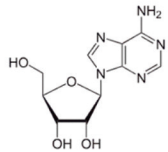
Composition:-

Each ml Contains:-

Adenosine	IP	3 mg
Water for Injections	IP	q.s

DESCRIPTION:-

Adenosine is a white crystalline powder. It is soluble in water and practically insoluble in alcohol. Adenosine is not chemically related to other antiarrhythmic drugs. Adenosine injection is a sterile, nonpyrogenic solution for rapid bolus intravenous injection. Adenosine is an endogenous nucleoside occurring in all cells of the body. It is chemically 6- amino-9-β-D-ribofuranosyl-9-H-purine and has the following molecular and structural formula: $C_{10}H_{13}N_5O_4$



Adenosine

PHARMACOLOGY

Pharmacokinetics

Intravenous adenosine is rapidly taken up by an active transport system into erythrocytes and. vascular endothelial cells where it is metabolised to inosine and adenosine monophosphate. The plasma half-life is less than 10 seconds.

Intravenously administered adenosine is rapidly cleared from the circulation via cellular uptake, primarily by erythrocytes and vascular endothelial cells. This process involves a specific transmembrane nucleoside carrier system that is reversible, no concentrative, and bidirectionally symmetrical. Intracellular adenosine is rapidly metabolized either via phosphorylation to adenosine monophosphate by adenosine kinase, or via deamination to inosine by adenosine deaminase in the cytosol. Since adenosine kinase has a lower Km and Vmax than adenosine deaminase, deamination plays a significant role only when cytosolic adenosine saturates the phosphorylation pathway. Inosine formed by deamination of adenosine can leave the cell intact or can be degraded to hypoxanthine, xanthine, and ultimately uric acid. Adenosine monophosphate formed by phosphorylation of adenosine is incorporated into the high-energy phosphate pool. While extracellular adenosine is primarily cleared by cellular uptake with a half-life of less than 10 seconds in whole blood, excessive amounts may be deaminated by an ecto-form of adenosine deaminase. As Adenosine Injection requires no hepatic or renal function for its activation or inactivation, hepatic and renal failure would not be expected to alter its effectiveness or tolerability.

USES AND ADMINISTRATION

Adenosine is an endogenous adenine nucleoside that is one of the components of nucleic acids and many coenzymes; as such, it is involved in many biological processes. It acts as an antiarrhythmic by stimulating adenosine A_1 -receptors and slowing conduction through the AV node. It does not fit into the usual classification of antiarrhythmics. It also produces peripheral and coronary vasodilatation by stimulating adenosine A_2- receptors.

Adenosine is used to restore sinus rhythm in the treatment of paroxysmal supraventricular tachycardia, including that associated with the Wolff-Parkinson-White syndrome. It is also used for the differential diagnosis of broad or narrow complex supraventricular tachycardias and in myocardial imaging.

In the treatment of paroxysmal supraventricular tachycardia, adenosine may be given in an initial dose of 3 mg by rapid intravenous injection. If this dose is not effective within 1 to 2 minutes, 6 mg may be given and if necessary, 12 mg after a further 1 to 2 minutes. Alternatively, an initial dose of 6 mg followed, if necessary, by two further doses of 12 mg at 1-to-2-minute intervals may be used, but this higher initial dose should not be given to heart transplant patients as they have an increased sensitivity to adenosine. For differential diagnosis of supraventricular tachycardias a similar dosage regimen is used, beginning with a dose of 3 mg followed by 6 mg and then 12 mg at 1 to 2 minute intervals if required.

In myocardial imaging adenosine is given by intravenous infusion in a dose of 140 micrograms/kg per minute for 6 minutes. The radionuclide is injected after 3 minutes of the infusion.

Adenosine and its derivatives, such as adenosine phosphate and adenosine triphosphate, have been used in various metabolic disorders because of their role in biological processes. Adenosine triphosphate, as the disodium salt, has been used as an antiarrhythmic.

Dose : Reversion to sinus rhythm in paroxysmal SVT:

* **Initial dose**: 6mg by rapid IV injection (3mg in patients with heart transplant as very sensitive to effects of adenosine). If it is essential to co-administer with dipyridamole, the initial dose should be reduced to 0.5-1 mg.
* **Second dose**: 12mg by rapid IV injection, if the first dose is not effective within 1-2minutes (6mg in patients with heart transplant).
* **Third dose**: 12mg by rapid IV injection if the second dose is not effective within 1-2minutes. Aid to diagnosis of broad or narrow complex SVT: the above ascending dosage schedule is given until sufficient diagnostic information has been obtained.

In conjunction with radionuclide myocardial perfusion imaging: 140 micrograms/kg/minute by IV infusion for 6 minutes. The radionuclide is injected after 3 minutes of infusion.

Intravenous injection Preparation and administration

For administration via a central or large peripheral vein only.

1. Withdraw the required dose.
2. The solution should be clear and colourless. Inspect visually for particulate matter or discoloration before administration and discard if present.
3. Give by rapid IV injection over 2 seconds into a central or large peripheral vein at a site as close to the cannulation site as possible.
4. Follow by a rapid flush of 20mL NaCl 0.9%.
5. Discard any unused solution immediately.

ADVERSE EFFECTS,

Transient facial flush, chest pain, dyspnoea, bronchospasm, choking sensation, nausea, light-headedness; severe bradycardia reported (requiring temporary pacing); ECG may show transient rhythm disturbances; edema; constipation.

PREGNANCY CATEGORY C

Animal reproduction studies have not been conducted with adenosine; nor have studies been performed in pregnant women. As adenosine is a naturally occurring material, widely dispersed throughout the body, no fetal effects would be anticipated. However, since it is not known whether Adenosine Injection can cause fetal harm when administered to pregnant women, Adenosine Injection should be used during pregnancy only if clearly needed.

PRECAUTIONS

Atrial fibrillation or flutter with accessory pathway (conduction down anomalous pathway may increase); heart transplant; pregnancy.

INTERACTION

Dipyridamole inhibits adenosine uptake and. therefore may potentiate the action of adenosine; if use of the two drugs is essential the dosage of adenosine should be reduced. Theophylline and other xanthines are competitive antagonists of adenosine. The risk of AV block may be increased if adenosine is used with other drugs that slow AV conduction.

OVERDOSAGE:

No cases of overdosage have been reported.

Storage: - Store at a temperature not exceeding 30°C, protect from moisture.

Improper Storage may be Deteriorate the product

Medicine: - Keep out of reach of children.

Presentation:- 2ml Ampoule pack in a single Tray, such tray pack in a mono-carton & 20 mono-carton pack in a outer carton

Manufactured By :
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