

Data Sheet

Metaraminol Infusion 0.5 mg/ml and 1 mg/ml

Name of the Medicine

Chemical name: (1*R*,2*S*)-2-amino-1-(3-hydroxyphenyl)propan-1-ol hydrogen (2*R*,3*R*)-tartrate

Generic name: Metaraminol tartrate

CAS: 33402-03-8

Molecular formula: $C_9H_{13}NO_2 \cdot C_6H_6O$ Molecular weight: 317.29

Description

Metaraminol tartrate is a white, crystalline powder, which is freely soluble in water, slightly soluble in alcohol, and practically insoluble in chloroform and in ether.

Metaraminol infusion is a clear, colourless solution containing metaraminol tartrate BP equivalent to 0.5 mg/ml and 1.0 mg/ml metaraminol base in Water for Injection BP. The infusions also contain sodium chloride for isotonicity but do not contain sodium metabisulphite or other antioxidant.

Pharmacology

Pharmacodynamics

Metaraminol is a potent sympathomimetic amine that increases both systolic and diastolic blood pressure. The pressor effect begins one to two minutes after intravenous injection, and lasts about 20 minutes to one hour. Metaraminol has a positive inotropic effect on the heart and has a peripheral vasoconstrictor action.

Renal, coronary, and cerebral blood flow are a function of perfusion pressure and regional resistance. In most instances of cardiogenic shock, the beneficial effect of sympathomimetic amines is attributable to their positive inotropic effect. In patients with insufficient or failing vasoconstriction, there is additional advantage to the peripheral action of metaraminol but in most patients with shock, vasoconstriction is adequate and any further increase is unnecessary. Therefore, blood flow to vital organs may decrease with metaraminol if regional resistance increases excessively.

The pressor effect of metaraminol is decreased but not reversed by alpha-adrenergic blocking agents. A primary or secondary fall in blood pressure and a tachyphylactic response to repeated use are uncommon.

Indications

Prevention and treatment of the acute hypotensive state occurring with spinal anaesthesia; adjunctive treatment of hypotension due to haemorrhage, reactions to medications, surgical complications, and shock associated with brain damage due to tumour or trauma.

It may also be useful as an adjunct in the treatment of hypotension due to cardiogenic shock or septicemia.

Contraindications

Use with cyclopropane or halothane anaesthesia should be avoided, unless clinical circumstances demand such use.

Precautions

Caution should be exercised to avoid an excessive blood pressure response. Rapidly induced hypertensive responses have been reported to cause acute pulmonary oedema, cardiac arrhythmias and arrest. Patients with cirrhosis should be treated with caution, with adequate restoration of electrolytes if diuresis ensues. A fatal ventricular arrhythmia has been reported in a patient with Laennec's cirrhosis while receiving metaraminol tartrate. In several instances, ventricular extrasystoles that appeared during infusion subsided promptly when the rate of flow was reduced.

With the prolonged action of this drug, a cumulative effect is possible, and with an excessive vasopressor response there may be a prolonged elevation of blood pressure even when therapy with metaraminol tartrate is discontinued.

Because of its vasoconstrictor effect, metaraminol tartrate should be given with caution in the presence of heart or thyroid disease, hypertension, or diabetes. Sympathomimetic amines may provoke a relapse in patients with a history of malaria.

When vasopressor amines are used for long periods, the resulting vasoconstriction may prevent adequate expansion of the circulating volume and may cause perpetuation of the shock state. There is evidence that plasma volume may be reduced in all types of shock, and that the measurement of central venous pressure is useful in assessing the adequacy of the circulating blood volume. Therefore, blood or plasma volume expanders should be employed when the principal reason for hypotension or shock is decreased circulating volume.

In choosing the site of injection, it is important to avoid those areas recognised as unsuitable for the use of any pressor agent, and to discontinue the infusion immediately if infiltration or thrombosis occurs. Although the urgent nature of the patient's condition may force the choice of an unsuitable injection site, the preferred areas of injection should be used when possible. The larger veins of the antecubital fossa or thigh are preferred to the veins in the ankle or the dorsum of the hand, particularly in patients with peripheral vascular disease, diabetes mellitus, Buerger's disease, or conditions with coexistent hypercoagulability.

Use in pregnancy (Category C)

There are no well controlled studies in pregnant women. Metaraminol may cause fetal hypoxia by constricting the uterine vessels thereby limiting placental perfusion. Metaraminol should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Use in lactation

It is not known whether metaraminol is secreted in human milk. Because many drugs are secreted in human milk, caution should be exercised if metaraminol is given to a breastfeeding woman.

Use in children

The effect of therapy with metaraminol in children has not been established.

Interactions with other medicines

Metaraminol should be used with caution in digitalised patients, since the combination of digitalis and sympathomimetic amines is capable of causing ectopic arrhythmic activity.

MAOIs and Tricyclic Antidepressants have been reported to potentiate the action of sympathomimetic amines.

Adverse Effects

Abscess formation, tissue necrosis or sloughing rarely follow the use of metaraminol tartrate.

Sympathomimetic amines, including metaraminol tartrate, may cause sinus or ventricular tachycardia or other arrhythmias, especially in patients with myocardial infarction.

Dosage and Administration

Metaraminol infusion is administered intravenously only.

Because the maximum effect is not immediately apparent, at least ten minutes should elapse before increasing the dosage. As the effect tapers off when the vasopressor is discontinued, the patient should be carefully observed so that therapy can be reinitiated promptly if the blood pressure falls too rapidly. Patients with coexistent shock and acidosis may show a poor response to vasopressors. Established methods of shock management, such as blood or fluid replacement when indicated, and other measures directed to the specific cause of the shock also should be used.

Intravenous infusion. (For adjunctive treatment of hypotension.)

The product is provided in the form of dilute infusions intended for direct use without further dilution or addition of additives. The usual initial dose is 0.5 – 5 mg and the rate of infusion should be adjusted to maintain the blood pressure required.

Overdosage

Contact the National Poisons Centre on 0800 764 766 for advice on management of overdose.

Overdosage may result in severe hypertension accompanied by headache, constricting sensation in the chest, nausea, vomiting, euphoria, diaphoresis, pulmonary oedema, tachycardia, bradycardia, sinus arrhythmia, atrial or ventricular arrhythmias, myocardial infarction, cardiac arrest or convulsions.

Should an excessive elevation of blood pressure occur, it may be immediately relieved by a sympatholytic agent, e.g. phentolamine. An appropriate antiarrhythmic agent may also be required.

The oral LD₅₀ in the rat and mouse is 240 mg/kg and 99 mg/kg, respectively.

Presentation and Storage Conditions

A clear colourless sterile solution of metaraminol tartrate equivalent to 0.5 mg/ml (20 ml syringes) and 1 mg/ml (10 ml syringes) metaraminol base. Supplied as single syringes packed in lilac sleeves.

Store below 25°C.

Further Information

This product contains no lactose, gluten or colourings.

This medicine has been granted provisional consent to distribution under Section 23 of the Medicines Act.

Name and Address of the Sponsor

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