

Product Information

APPROVED NAME

POLYVALENT SNAKE ANTIVENOM (AUSTRALIA - PAPUA NEW GUINEA)

AUST R 74899

DESCRIPTION

POLYVALENT SNAKE ANTIVENOM contains antibodies to the venom of the following snakes:

King brown snake	(<i>Pseustes australis</i>)
Tiger snake	(<i>Notechis scutatus</i>)
Brown snake	(<i>Pseudonaja textilis</i>)
Death adder	(<i>Acanthopis antarcticus</i>)
Taipan	(<i>Oxyuranus scutellatus</i>)

The antivenom is prepared from the plasma of horses immunised with the venom of the snakes. The amount of antivenom has been standardised to neutralise *in vitro* the average yield of venom from each snake. The minimum amount of each antivenom is as follows:

King brown snake antivenom	18,000 units
Taipan antivenom	12,000 units
Death adder antivenom	6,000 units
Tiger snake antivenom	3,000 units
Brown snake antivenom	1,000 units
Total	40,000 units

The product also contains phenol, sodium chloride and other equine plasma proteins in an aqueous solution.

PHARMACOLOGY

The venoms of some snakes from Australia and Papua New Guinea contain neurotoxins which can cause respiratory paralysis, and coagulants (except in the death adder) which convert prothrombin to thrombin, which in turn produces a secondary fibrinogenemia with resultant haemorrhage. The venoms of some snakes also contain a myolytic toxin which can cause renal failure.

Although the amount of antivenom in each dose of POLYVALENT SNAKE ANTIVENOM will neutralise the average yield of venom from each snake *in vitro*, the actual amount needed in clinical practice may be considerably more, particularly if treatment is delayed and the effects of the venom are already evident.

INDICATIONS

For the treatment of patients in Papua New Guinea and in all Australian states except Victoria and Tasmania who exhibit manifestations of systemic snake envenoming and the snake has not been definitely identified. In Tasmania, Tiger Snake Antivenom should be used rather than polyvalent antivenom whilst in Victoria a combination of Tiger Snake Antivenom and Brown Snake Antivenom is the preferred treatment.

POLYVALENT SNAKE ANTIVENOM should not be used when the snake has been identified, as appropriate monovalent antivenom provides similar neutralisation of the venom without introducing the larger amounts of equine protein present in the polyvalent product.

CONTRAINDICATIONS

There are no absolute contraindications, but the product should not be used unless there is clear evidence of systemic envenoming with the potential for serious toxic effects.

PRECAUTIONS

When medicinal products prepared from animal plasma are administered, infectious diseases due to the transmission of infective agents cannot be totally excluded. This applies to pathogens of hitherto unknown origin. This possibility must always be considered and should be conveyed, whenever possible, to patients who may receive the product.

Historically there have been no known recorded cases of transmission of viruses by this product.

In many cases of snake bite, little venom is injected and significant systemic envenoming does not occur. If a significant amount of venom has been introduced, clinical or laboratory evidence of poisoning is usually present within 2 hours but can be delayed, particularly if efficient first aid has been instituted with immobilisation and a firm crepe bandage.

Removal of the bandage and splint will often precipitate the systemic effects of the poison in patients who have been bitten.

Suspected cases of snake bite should be observed for at least 6 hours after being bitten or after removal of the bandage and definite cases for at least 12 hours, preferably in an intensive care setting. Such patients must be regularly monitored for signs of neuromuscular impairment, coagulopathy, myolysis and other abnormalities.

A diagnosis of systemic envenoming should be based on clinical and, where possible, laboratory evidence.

The venom detection kits can be helpful in detecting and identifying specific venom at the bite site or in urine and can enable the selection of the appropriate monovalent antivenom. Tests of blood are less reliable.

As this product is prepared from animal serum, severe allergic reactions may follow, including anaphylactic shock. A syringe already loaded with 1:1000 adrenaline must be available during antivenom therapy. Anaphylactoid reactions may be more likely to occur in those who are atopic or who have previously received equine serum. This would include patients who have previously received equine Tetanus Antitoxin (prior to 1974 in Australia). Some authorities have advocated premedication with subcutaneous adrenaline and intravenous antihistamine, particularly in those patients who are known to be at risk, but such use is controversial.

The results of skin testing to determine patients who may have an allergic reaction are not satisfactory and should be not undertaken.

Antivenoms may bind complement and produce an anaphylactoid reaction in patients who have had no previous contact with equine protein. The risk of such a reaction can be reduced by adequate dilution of antivenom (1:10 in adults and 1:5 in small children) prior to infusion (see DOSAGE AND ADMINISTRATION).

Symptoms and signs of anaphylaxis include pallor, tachycardia, urticaria, angioedema, cough and dyspnoea due to laryngeal oedema or bronchospasm. Nausea, vomiting and abdominal pain are less common. Typical signs of shock may develop in 1 to 2 minutes and the patient may convulse, become unresponsive and die.

Should anaphylaxis occur, cease administration of antivenom, administer oxygen and inject adrenaline 1:1,000 intramuscularly at the following dose rates: small adults (>50 kg) 0.25 mL, average adults (50-100 kg) 0.5 mL, large adults (>100 kg) 0.75 mL. For children (to age 12) use 1:10,000 and inject 0.25 mL per year of age. If there is little or no response to the initial intramuscular dose of adrenaline, administer the same dose (diluted to 1:10,000) slowly into an intravenous line. Repeat at 5 minute intervals depending on response. In severe cases, intravenous antihistamine and intravenous corticosteroids may also be given to reduce the chance of late reactions, but have a slower onset of action than adrenaline. Further administration of antivenom should be considered in the light of the relative problems of envenoming and anaphylaxis.

Severe cases of systemic envenoming should be managed in an intensive care unit.

Delayed serum sickness can occur following the use of animal derived antivenoms. The most common manifestations include fever, cutaneous eruptions, arthralgia, lymphadenopathy and albuminuria. Less commonly, arthritis, nephritis, neuropathy and vasculitis can occur. The condition usually appears 8-13 days after the use of antivenom but can occur as soon as 12 hours after a second injection of a similar animal protein. The incidence of serum sickness is greater with larger volumes of antivenom, but can be expected to occur in at least 5% of patients receiving horse serum for the first time.

Use in pregnancy

There is limited but inconclusive information on the safety of the product in pregnant women.

Use in lactation

No information is available on the use of the product during lactation.

ADVERSE REACTIONS

As the product is of animal origin, severe allergic reactions can occur (see PRECAUTIONS). There have been 17 spontaneous reports in Australia of hypersensitivity to snake antivenoms produced by CSL between 1978 and 2003 and of these, 6 involved POLYVALENT SNAKE ANTIVENOM. Publications in which adverse events to all snake antivenoms are reported give rates ranging from 5 to 39%. The rate related to the polyvalent antivenom is higher than that caused by monovalent antivenoms and appears to be around 29%.

Following the treatment of snake bite in Australia, there were 3 deaths which were attributed to serum reactions to snake antivenoms between 1952 and 1961. No deaths specifically attributed to the use of snake antivenoms have been reported since that time.

Adverse events to all snake antivenoms manufactured by CSL are compiled below:

Hypersensitivity and skin	Common:	Urticaria Rash Hypertension Bronchospasm Anaphylaxis Delayed serum sickness
	Uncommon:	Angioedema
Neurological	Common:	Headache
Musculoskeletal	Uncommon:	Arthralgia Myalgia
Gastrointestinal	Uncommon:	Abdominal pain Vomiting
Cardiovascular	Uncommon:	Chest pain Cyanosis
General	Common:	Pyrexia
	Uncommon:	Pain at infusion site

As the recording of adverse events was by means of forms which were, in most cases, returned within 24 hours of administration of the antivenom, the actual incidence of serum sickness may be higher than is reported here.

DOSAGE AND ADMINISTRATION

A proportion of people bitten by snakes have symptoms that are so mild that antivenom is not necessary. When there is evidence of systemic envenoming and the snake has not been identified, the contents of one vial (40,000 units) of POLYVALENT SNAKE ANTIVENOM should be administered slowly by intravenous infusion after dilution with Hartmann's Solution. The dose is the same for adults and children.

The antivenom should be diluted 1 in 10, although in small children a dilution of 1 in 5 may be more appropriate to avoid fluid overload. It should not be administered by the intramuscular route.

Some authorities have advocated premedication with 0.25 mL of 1:1,000 adrenaline subcutaneously and intravenous antihistamine

to reduce the chance of anaphylactic shock, particularly in those patients who are known to be at risk, but such use is controversial (see PRECAUTIONS).

The patient should receive the antivenom in an intensive care unit if possible.

If the patient has received adequate first aid treatment, the splint and pressure bandage should not be removed until antivenom is available for infusion, as removal can precipitate significant effects of systemic envenoming.

The aim of antivenom therapy is to neutralise the venom. Sufficient antivenom must be given to neutralise further venom migrating from the bite site. Deterioration in the patient's condition may indicate that treatment is inadequate and more may be required. Children may become critically ill sooner than adults and may need more antivenom. Patients with severe systemic envenoming may require several vials of antivenom to control the effects, particularly if coagulopathy is present. Amounts as high as 6 vials have been used in the treatment of severe systemic envenoming; it should be remembered that such high doses of this product contain large amounts of horse protein. The patient must be monitored for at least 6 hours after antivenom is administered.

Before starting the infusion of antivenom, a separate syringe should be loaded with 1:1000 adrenaline, as anaphylactic reactions can occur rapidly (see PRECAUTIONS).

Should an anaphylactic reaction occur, cease administration of antivenom, administer oxygen and inject adrenaline 1:1,000 intramuscularly at the following dose rates: small adults (<50 kg) 0.25 mL, average adults (50-100 kg) 0.5 mL, large adults (>100 kg) 0.75 mL. For children (to age 12) use 1:10,000 and inject 0.25 mL per year of age. If there is little or no response to the initial intramuscular dose of adrenaline, administer the same dose (diluted to 1:10,000) slowly into an intravenous line. Repeat at 5 minute intervals depending on response.

As delayed serum sickness is relatively common following the use of large volumes of horse serum, it is advisable to administer a corticosteroid either by a single intravenous injection or orally for 4 to 5 days to children and to those receiving multiple vials of antivenom.

It may occasionally be necessary to treat both envenoming and anaphylaxis simultaneously.

POLYVALENT SNAKE ANTIVENOM contains no antimicrobial preservative. Use once only and discard any residue.

OVERDOSAGE

No information is available on overdosage.

PRESENTATION

POLYVALENT SNAKE ANTIVENOM is available as vials containing the following minimum amounts of each antivenom in approximately 50 mL of aqueous solution:

King brown snake antivenom	18,000 units
Taipan antivenom	12,000 units
Death adder antivenom	6,000 units
Tiger snake antivenom	3,000 units
Brown snake antivenom	1,000 units
Total	40,000 units

STORAGE

POLYVALENT SNAKE ANTIVENOM should be protected from light and stored at 2-8°C. Do not freeze.

NAME AND ADDRESS OF SPONSOR

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