

Product Information

APPROVED NAME

TAIPAN ANTIVENOM

AUST R 74898

DESCRIPTION

TAIPAN ANTIVENOM is prepared from the plasma of horses immunised with the venom of the taipan snake (*Oxyuranus scutellatus*). Each vial contains 12,000 units of antivenom which has been standardised to neutralise *in vitro*, the average yield of venom from the taipan. The product also contains phenol, sodium chloride and other equine plasma proteins in an aqueous solution.

PHARMACOLOGY

Taipan venom is probably the most potent snake venom in the world. Before the use of antivenom, taipan bites were almost invariably fatal. The venom contains a neurotoxin which can cause respiratory paralysis, a coagulant which converts prothrombin to thrombin, which in turn produces a secondary afibrinogenaemia with resultant haemorrhage, and a myolytic toxin.

Although the amount of antivenom in each dose of TAIPAN ANTIVENOM will neutralise the average yield of venom *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 who exhibit manifestations of systemic envenoming following a bite by a taipan.

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 envenoming does not occur. With Taipans, however, the majority of patients will develop systemic envenoming. 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 (also 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 none of these has involved TAIPAN ANTIVENOM. Publications in which adverse events to all snake antivenoms are reported give rates ranging from 5 to 39%. The rates related to the monovalent antivenoms appear to be lower than those to the polyvalent antivenom. Two published studies record the use of TAIPAN ANTIVENOM and both are from New Guinea. In one report there were no adverse reactions to TAIPAN ANTIVENOM in the 2 patients who were treated, whilst the other study records the use of either Polyvalent Snake Antivenom or TAIPAN ANTIVENOM in 128 patients bitten by taipan snakes, but adverse reactions to the antivenom are not mentioned. The overall rate for monovalent antivenoms appears to be in the vicinity of 9%.

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	<i>Common:</i>	Urticaria Rash Hypotension Bronchospasm Anaphylaxis Delayed serum sickness
	<i>Uncommon:</i>	Angioedema
Neurological	<i>Common:</i>	Headache
Musculoskeletal	<i>Uncommon:</i>	Arthralgia Myalgia
Gastrointestinal	<i>Uncommon:</i>	Abdominal pain Vomiting
Cardiovascular	<i>Uncommon:</i>	Chest pain Cyanosis
General	<i>Common:</i>	Pyrexia
	<i>Uncommon:</i>	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

When there is evidence of systemic envenoming and it has been established that TAIPAN ANTIVENOM is the appropriate treatment, the contents of one vial (12,000 units) should be administered slowly by intravenous infusion after dilution with Hartmann's Solution. The dose is the same for adults and children.

If severe defibrination is present at the onset of treatment, at least 3 vials of antivenom should be given as initial treatment.

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 and may need more antivenom. Patients with severe systemic envenoming may require up to 8 vials to control the effects. 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.

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

OVERDOSAGE

No information is available on overdosage.

PRESENTATION

TAIPAN ANTIVENOM is available as vials containing 12,000 units of antivenom in 43 to 50 mL of aqueous solution.

STORAGE

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

NAME AND ADDRESS OF SPONSOR

CSL Limited
45 Poplar Road
Parkville Victoria 3052
Australia

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