

[Antivenin of Deinagkistrodon acutus]

## **Freeze Dried Deinagkistrodon acutus [note: Hundred Pace Viper] Antivenin Injection Instructions**

[Medical Vaccination Preparations Series No. 000010]

This product is prepared according to the principles of snake venom immunity matching, yielding a valuable serum which has then been carefully prepared by freeze drying and consisting of a white powder product; this when dissolved results in a slightly yellow coloured clear liquid. The efficacy and safety of this product has been confirmed via rigorous testing and confirmation and has therefore been recognised by the government as an efficacious treatment for venomous snake bites.

### **Application**

**Choice of serum:** if it has been possible to confirm the type of snake responsible at the time of the snake bite, it is recommended that the monovalent antivenin is used. If it has not been possible to confirm the type of snake, then depending on whether the patient exhibits blood type or neurological type symptoms, they should be injected with either the blood type or neurological type multivalent antivenin.

**Solution:** Dissolve one dose (containing more than 1000 antitoxin units) of the product in 10ml of diluent; the product should be dissolved completely and used within one hour.

**Timing of injection:** Antivenin will be incapable of counteracting the effects of venom that has already combined with tissue cells, therefore the sooner this antivenin is used after having been bitten by a venomous snake the better the results will be.

**Injection site:** If the bite has occurred not more than two hours earlier and the patient does not exhibit generalised symptoms, half the antivenin may be injected subcutaneously around the area of the bite, with the other half being injected into muscle. If the bite has occurred more than two hours earlier, or where the patient exhibits generalised symptoms, a small portion of the antivenin should be injected subcutaneously around the area of the bite, the majority being given intravenously. If the intravenous injection is chosen, the first 1ml should be injected over a period of a number of minutes. Then the injection rate should be adjusted so that it does not exceed 1ml per minute whilst careful observation of the patient for reactions must be ensured as a precaution.

**Dosage:** The adult dosage is generally one dose. This should be increased for children under ten years of age. If there is continued localised or generalised deterioration in symptoms after injection, the patient should be given a further dose at half an hour to two hour intervals until the generalised symptoms improve.

## Precautions

A variety of reactions may occur in patients injected with this antivenin who are allergic to equine serum. In extreme cases, fatal shock may occur in a very short period of time. Therefore prior to injection, one should take note of the following in addition to making a careful evaluation of the situation:

### 1. Serum allergy investigation:

**(1) Conjunctiva method:** Dilute the antivenin to a factor of 10 in sodium chloride solution. Drip into the conjunctiva of the eye and observe for 30 minutes. If redness and itchiness occur and the eyes begin to water this is a positive reaction.

**(2) Subcutaneous method:** Dilute the antivenin to a factor of 100 in sodium chloride solution and inject 0.1ml subcutaneously into the forearm. Observe for localised transfusion type swelling and localised redness and itchiness, which indicate a positive reaction.

\* If there is a positive reaction or in doubtful cases where the doctor believes that it is necessary to give the patient the antivenin, consideration should be given to providing a minimal repeated dosage.

**Method:** starting with a dosage of 0.005ml injected subcutaneously, repeat the dosage every 20-30 minutes until the complete dose has been administered.

2. If there are doubts about whether or not the patient is allergic to the serum, avoid intravenous injection.
3. When intravenous injection is used, the first 1ml should be given over a period of time exceeding 5 minutes. The remainder should then be given at a rate not exceeding 1ml per minute. Alternatively, dilute the antivenin to a factor of 300 in sodium chloride, provide as a drip and restrict the rate. Carry out close observation of the patient for reactions as a precaution.
4. Have 1:1000 adrenalin to hand, which should be injected immediately if serum shock occurs. If necessary a further injection should be administered. In general a dose of 0.5-1.0ml is applicable in adults. It is reduced for children.
5. Antivenin is most effective when administered within four hours of having been bitten. It is relatively ineffective when administered after 8 hours. Attention should be paid to the possibility of serum sickness occurring when large dosages are administered.

## Prescription

Extreme care should be taken in cases suffering from spasms and other allergic type characteristics, those who have undergone serum therapy or those who exhibit a serum anaphylaxis response to tests.

## Side effects

1. **Serum shock:** In those who exhibit serum anaphylaxis, regardless of whether a minimal

dosage is used and regardless of the path of injection, there is the possibility of serum shock occurring between a few minutes and up to an hour later. Symptoms of serum shock include rash, abdominal pain, and lumbar pain and when severe can result in breathing difficulties, cyanosis, a drop in blood pressure and systemic collapse leading to death.

2. **Fear of cold and high temperature:** If the patient exhibits such a reaction, it will mainly occur between 20 minutes and 1 hour after intravenous injection. Symptomatic treatment may be administered.
3. **Serum sickness:** The patient develops a rash, a high temperature, swelling of the lymph nodes, joint pain and other such symptoms, most often occurring between 4 to 10 days after injection, although in some cases not occurring until after a month; adrenalin is effective, but only temporarily.
4. **Arthus reaction:** Between 7 days and 3 months after injection, when re-injected with serum from the same type of animal a localised reaction may occur resulting in necrotising of the tissues; care should be taken to distinguish between this and infected wounds.

#### **Storage and shelf life**

This product should be stored away from light at between 2-10°C. The efficacy of the product will reduce rapidly if stored at a high temperature. The shelf life is 5 years from the date of quality acceptance. For the expiry date refer to the label.

#### **Packaging**

Each bottle contains 1000 or more units of antivenin, accompanied by the diluent. Refer to the label for the specific type of antivenin product contained in the bottle.

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