



**Biological Production Division
National Institute of Health
Islamabad, PAKISTAN**

FOR THE REGISTERED MEDICAL PRACTITIONER

**ANTI-SNAKE VENOM SERUM
(Polyvalent Equine Immunoglobulins)**

Composition:

Anti-Snake venom serum is a sterile preparation containing purified and concentrated immunoglobulins obtained from the serum of healthy horses immunized against the venoms of the following four common poisonous snakes of Pakistan namely:

- | | |
|---------------------|---------------------------|
| 1. Cobra | <i>Naja naja</i> |
| 2. Krait | <i>Bungarus caeruleus</i> |
| 3. Russell's viper | <i>Vipera russelli</i> |
| 4. Saw scaled viper | <i>Echis carinatus</i> |

Dosage:

Conventionally the dose of Anti-Snake Venom Serum is 10-30 ml and in severe cases it may go up to 200 ml. One third of the initial dose can be administered locally around the wound and remaining two third of the dose intravenously. The second dose can be repeated two hours after the first dose or even earlier depending on the condition of the patient and severity of symptoms. Further doses can be repeated after six hours interval until the symptoms disappear completely. (For details please see under "Specific Serum Treatment").

Note: The dosage, schedule of repeat dosages and route of administration of Anti-snake venom serum may be modified or adjusted by the specialist/practitioner according to the severity of symptoms.

Management of the Snake Bite:

First Aid:

Snakebite is a Medical emergency and it should be treated immediately. The measures to meet the emergency should be quick. The following first aid measures may be taken:

1. Remove the patient to a well ventilated and quite place. Assure the patient that there is no reason to be nervous or frightened. Also try to gain his confidence.
2. In case of bites on limbs, apply a pressure bandage to control flow of blood and lymph from the area of the bite. In case of leg apply the pressure bandage above the knee and in case of arm above the elbow. Partially release the pressure bandage after every 10 minutes.

Management at First Level Care Facility (FLCF):

The medical practitioner should manage the patient as **emergency** on top priority according to following **ABC method**:

- A. Assessment:** Assess and confirm about snakebite. Presence of fang marks, local pain, edema and numbness are considered indicators for snake bite.
- B. Bathe:** Bathe the wound with water, if venom is visible.
- C. Comfort & Reassurance:** Avoid panic and assure the patient that there is no reason to be nervous or frightened. Remove the constricting items like belt, watch, ring, shoes, bracelets or tight clothes.
- D. Dressing & Immobilization:** Apply pressure bandage and immobilize the patient, which would delay venom spread.
- E. Essential Life Support Measures:** If patient is in shock and requires cardiopulmonary resuscitation, then treat accordingly.
- F. Find:** Find transport for the nearest hospital.

Management in the Hospital:

- a. Assessment of the snake bite:**
The attending physician should assess the bite(s), shape and number of 'PODS' which are identification marks:
P: Puncture
O: Oozing of blood
D: Discolorization
S: Swelling

- b. Remove the pressure bandage if applied previously during first aid treatment
- c. Maintain IV line for the transfusion/infusion of blood/isotonic solutions to avoid shock and hemorrhage.

Specific Serum Treatment:

Once the venom has got into the circulation, it is the anti-snake venom serum that can neutralize it.

At first the dose of 10-30 ml of the serum will be injected intravenously very slowly. The second dose can be repeated two hours after the first dose or even earlier depending on the condition of the patient and severity of symptoms. Further doses can be repeated after six hours interval until the symptoms disappear completely. One third of first dose of anti-snake venom serum can be administered locally to prevent gangrene development specifically in case of Viper's bite. Antiserum can be diluted with isotonic solution (The quantity of isotonic solution can be determined at the rate of 5ml/Kg body weight).

Note: Adrenaline (1 ml 1:1000 Sol, Subcutaneously) or any other antihistamine should be kept ready to treat any unfortunate allergic reaction of serum.

Supportive Treatment:

Antibiotics, antipyretics, anti-emetics, steroids, Anti-Histamines, Anti-Tetanus Serum or any other supportive therapy can be given as needed and recommended by the physicians.

Clinical & Laboratory Investigations:

Following clinical and laboratory investigations will be helpful in management of snakebite cases:

- Pulse, blood pressure and respiratory rate should be monitored on half hourly basis.
- Body temperature, urine out should be analyzed.
- Diameter of bitten limb and estimation of proximal spread should be monitored.
- Neurological assessment should be carried out *i.e.* check the level of consciousness and reflexes.

- Blood CP, clotting time, Prothrombin time, Hb level, serum bilirubin, urea, electrolyte, LFT and blood cross matching should be carried out according to the requirement.

Precautions:

Following measure should not be taken:

1. Never use chilling, freezing or cryogenic agents.
2. Never apply chemicals to the wound other than recommended by the physicians.
3. Never attempt surgical procedures.
4. Never cauterize the wound or surroundings of the wound.
5. Never give electrical shock to the patient.

Storage:

The product is potent for two years from the date of manufacturing if kept at 2-8°C. Room temperature deteriorates the protein contents of anti-snake venom serum.

Presentation:

Anti-snake venom serum is supplied as 10 ml liquid in glass vials.

Disposal:

Left over Anti-snake venom serum and used empty vials should be disposed off as biomedical waste.

Manufactured By:

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