Antivenom
Snake Venom Antiserum BP

Presentation
Antivenom* Each vial contains lyophilized preparation of Snake Venom Antiserum BP. After reconstitution each ml Snake Venom Antiserum neutralizes not less than Cobra venom (Naja naja) 0.60 mg, Common Krait venom (Bungarus caeruleus) 0.45 mg, Russell’s Viper venom (Vipera russelli) 0.60 mg, Saw-scaled Viper venom (Echis caninai) 0.45 mg.

Description
Snake Venom Antiserum lyophilized is a refined and concentrated preparation of serum globulins for intravenous administration, containing equine immunoglobulin fragments F(ab')2, obtained from the plasma of healthy equines, hyperimmunized against venoms of above species of snakes. In addition, it also contains the anti-microbial agent: cresol.

Indications and use
Antivenin is indicated for bites caused by Cobra, Common Krait, Russell’s Viper and Saw-Scaled Viper, where the patient presents with one or more of following visible clinical signs and symptoms of envenomation –

1. Local envenomation
   a) Presence of bite marks with or without oozing of blood, blistering and change in color of skin.
   b) Rapidly progressive or massive swelling involving more than half of the bitten limb within few hours of bite (without envenomation).
   c) Development of enlarged tender lymph nodes draining the bitten part within couple of hours after bite.

2. Systemic envenomation
   a) Neurotoxic syndrome- signs of neuro-paralyse like slurring of vision, double vision, and difficulty in swallowing, sleepy feeling, drooping of head and the voice may become indistinct with shake breathing, ptosis, ataxia, respiratory paralysis and generalized fasciculus paralysis.
   b) Hemotoxism syndrome- spontaneous systemic bleeding, nausea, vomiting, abdominal pain and abdominal tenderness suggestive of gastro-intestinal or retro-peritoneal bleed and/or renal damage, coagulopathy detected by 20 min APTT with or without external bleeding and shock.

   As of now Antivenin is the only specific antidote for snake envenomation and prompt administration is required. However, considering the average quantity of venom injected by snake at the time of bite and factors such as type of snake, time of reporting after bite, size of snake, amount of venom injected during bite, seasonal & regional variation in venom composition etc., no accurate dosage can be recommended. However, considering the average quantity of venom injected by snake at the time of bite and degree of envenomation, it is recommended to administer initial dose of 5-10 vials of Antivenin by slow intravenous infusion either undiluted at a speed of not more than 2 ml per minute or after dilution with Normal or glucose saline at a rate of 5-10 ml/kg body weight over one hour. Children should receive the same dose as adults. Constant monitoring of the vital signs at frequent intervals during initial 1 hour is recommended. Requirement of further dosing depends on extent of reversal of coagulopathy confirmed after 6 hours of Antivenin administration by WBCT in haemotoxic bites or if symptoms persist or worsen or if respiratory failure in neurotoxic bites after 1 hour of Antivenin administration. If the blood is still in coagulable or no signs of reversal of paralysis are seen, a further dose of 5 to 10 vials of Antivenin should be administered by slow IV route only. Administration by IM or locally around the bite wound is not recommended. In the majority of cases of both neurotoxic and haemotoxism bites, total dose of 15-20 vials is adequate unless a proven recurrence of envenomation is established. In such a scenario, further doses can be given as per clinical condition of the patient. Hypersemicry is skin test has no predictability value and hence should not be used.

Supportive treatment
Hydration, ventilation (Maintenance of airway is essential in neurotoxic bites due to impending respiratory paralysis), dialysis (Renal failure is a common complication in haemotoxism bites and might require dialysis), neostigmine, pain management (Most of the bite sites are painful requiring administration of pain killers) and surgical intervention if required. In addition above, administration of antibiotics and TETanus toxoid may be necessary as per the clinical condition of the patient.

Pregnancy and lactation
Considering the risk associated with snake bite envenomation, pregnancy is not a contraindication for the administration of Snake Venom Antiserum subsequent to bite.

Drug interactions
There are no known drug interactions reported.

Adverse reactions
Antivenin being derived from equines is heterologous to human can give either early or late reaction. Adrenaline should be always kept handy, before starting the dose of Antivenin.

Antivenin Reactions

<table>
<thead>
<tr>
<th>Type</th>
<th>Early (Within few hours)</th>
<th>Late (Few days or more)</th>
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</thead>
<tbody>
<tr>
<td>A)</td>
<td>4. Respiratory paralysis</td>
<td>1. Development of subcutaneous oedema</td>
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<tr>
<td>B)</td>
<td>2. Presence of bite marks</td>
<td>2. Development of subcutaneous oedema</td>
</tr>
<tr>
<td>C)</td>
<td>3. Presence of swelling</td>
<td>3. Development of subcutaneous oedema</td>
</tr>
</tbody>
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Reduction in adverse reactions has been reported by use of adequate dilution of Antivenin with saline and controlling rate of infusion.

Contraindications and precautions
There are no known contraindications for the administration of Antivenin.

Proper precautions are necessary while dealing with persons with a known hypersensitivity to one of constituents of product. Few doctors prefer to premedicate patients with H1, Adrenaline 0.25 ml s/c to prevent possibility of adverse reactions. In haemotoxism bites, IM injections should be avoided till correction of coagulopathy to avoid formation of haematoxia and oozing of blood.

In patients having tourniquet, it should be released slowly only after start of Antivenin administration.

Storage
Lyophilized Antivenin is stable at room temperature and does not require special storage facilities. Ideally, it should be stored in a cool & dark place and do not expose to excessive heat.

Commercial pack
Antivenin* Each box contains 1 vial of Snake Venom Antiserum BP, 1 ampoule containing 10 ml SYF antigen and one sterile disposable syringe.

(*-hawk Antivenin)