

Bees, Wasps, Ants and Ticks

Sept 2014

Hymenoptera – bees, wasps, ants

Hymenoptera means membrane wings, includes:

- Vespid (yellow jacket or European wasp and paper wasps)
- Aspids (honey bees)
- Ants
- Saw flies

Bees can only sting once, wasps may sting multiple times. Stinging causes local pain and irritation.

Reaction to a sting depends on prior exposure and sensitivity.

Bee stings cause approximately one death per year in Australia.

Nearly all deaths due to anaphylaxis, Occasionally due to massive envenomation

Venom contains: Melittin, Phospholipase A2, Hyaluronidase

Management

Triaged according to severity of reaction

Beware, condition can deteriorate rapidly

Team approach in a RESUS area

Vital signs, IV access, cardiac monitoring, pulse oximetry

ABC: O2 to maintain sats >90, RSI, iv access, fluid resus, adrenaline, plan alt airway options

Decontamination by removal of barb

First-line therapy

Severe - anaphylaxis

Adrenaline 100µg (0.1 mg) IV as a 1:100,000 dilution over 5-10 min (ie. 0.1ml 1:1000 in 10mls N/S)

Children get Adrenaline 0.01mg/kg (0.01ml/kg 1:1000) IM

If refractory commence Adrenaline IV infusion 1mg (1.0ml of 1:1000) in 500ml NS at 0.5-2ml/min

Children get Adrenaline IV infusion 0.1-0.3 µg/kg/min

N/S bolus 1-2L (10-20ml/kg in children)

Moderate systemic reactions

Adrenaline 0.3-0.5mg (0.3-0.5 ml 1:1000) IM every 5 min-10 min - Most need only one dose

Second-line therapy

Corticosteroids, H1 blocker (phenegan), H2 blocker(ranitidine)

Bronchodilators (ventolin, ipratropium, magnesium iv), Glucagon for patients on β-blockers

Analgesics, Ice packs

Disposition

Low risk patients, symptom free after appropriate treatment D/C after 4hrs observation

High risk patients: previous severe reactions, extreme ages, severity/speed of presentation, β-blockers, asthmatics, unreliable patients, long distances to return

Patients who have suffered severe systemic reactions should be admitted/monitored for complications: Skin testing / RAST (Radioallergosorbent tests): In ALL cases of systemic reactions

Epipen: Extensive/prolonged local reactions + ALL systemic reactions that have negative skin test

Venom Immunotherapy: ALL systemic reactions that have a POSITIVE skin test

Allergist referral: ALL systemic reactions

Medic Alert Tag

Change antihypertensives if currently on a β-blocker

Detailed advice on discharge: use of epipen, avoid exposure, written action plan, return if recur

Massive envenomation

Vomiting, diarrhea, Shock, MOF, myocarditis, hepatitis, haemoglobinuria, rhabdomyolysis

Signs of anaphylaxis if sensitive

15% mortality with massive envenomation: Death likely if >20stings/kg, mild illness if 1-4stings/kg.

Delayed Reaction

5-14 days post sting: serum sickness-like signs. Immune complex mediated

Ants

Bull ants – 3% are allergic; incr risk death if on ACEi

Red fire ants – very aggressive; sterile pustules form after bite

Ticks

3 of 19 Australian species known to secrete paralytic toxin

Nearly all cases due to scrub tick (*Ixodes holocyclus*), East Coast Australia

Attaches to host via proboscis - attachment may cause local necrosis

Larval forma may cause allergic reaction in infested host

Tick venom

Holocyclotoxin – neurotoxin similar to botulinum toxin, also haemostatic and anti-inflamm agents

Effects of tick bites

Local skin irritation, rash and tick paralysis

Local and systemic allergic reaction

Bite site infection and Tick borne disease (*Rickettsia*: regional LN, malaise, fever, rash, tache noir)

Tick paralysis

unsteady gait, drowsy, limb paraesthesia - after 4-5/7 attachment: ascending, symmetrical flaccid paralysis, CN involvement (eg. Swallowing, Bells palsy, eye mvmt), resp involvement - more likely <5yrs

Assessment

Onset of symptoms 4-5 days after attachment - longer the attachment – more likely the paralysis

Unsteady gait, ataxia, distal muscles first affected

Generalized weakness – unable to walk; swallowing difficulties, Bell's palsy

Ascending flaccid paralysis – GBS important DD - Paralysis may worsen for up to 48hrs after tick removal

Management

Remove tick (don't squeeze body), look for others

Antihistamine / steroids if local reaction

May need Abx for secondary bacterial infection (doxycycline for rickettsia)

Tick paralysis may worsen after removal of tick (24hrs close observation)

Tick antivenom: 1 vial, give early. May confer some benefit but not reverse established paralysis

Supportive management, ventilatory support as indicated + ADT

Australian Scorpions

Not life-threatening, resuscitation not required

Local symptoms: Severe local pain for several hours, inflamm, paraesthesia, numbness for days

Systemic symptoms: Uncommon – N+V, malaise, incr HR

Management: Ice, analgesia; PIB- NO. Transfer to hospital if refractory pain or diagnosis in doubt