

## IMMUNOTHERAPY

### Build-up:

#### First appointment:

- 1- Instruct patients they must not exercise for 2 hours prior to shot and 2 hours following.
- 2- Remind patient to notify nurse if the patient becomes pregnant
- 3- Review medications that the patient is on. If patient is on **beta-blockers** they must not start/continue immunotherapy. If patient is on **ace-inhibitors** they must avoid taking medication until a few hours after appointment. Remind patient to notify you of any changes in medications while on immunotherapy.
- 4- Ensure patient knows they must remain in office for 30 minutes after shot, and if unable to wait, shot **must be postponed** when patient is able to wait.
- 5- Remind patient to notify nurse if they have a cold, fever, or asthma exacerbation, as the shot **must be postponed**

### **All build-up shots are given 1 week apart**

### Administration:

- Shots are given subcutaneously in arm (If 2 shots are required, each shot should be done in different arms), with 26-27 gauge needle with TB syringe
- **Avoid massaging** area (and instruct patient to avoid also) after shot, as this will increase the rate of absorption unnecessarily

If dose is missed on build up:

- misses dose by less than 1 week, continue as scheduled
- misses by 1 week, decrease by 0.1cc
- misses by 2 weeks, decrease by 0.2cc
- misses by 3 weeks, decrease by 0.3cc
- missed by more than 3 weeks, must restart therapy from beginning (Vial 1, 0.1 cc)

If dose is missed on maintenance:

- misses by 1 week, repeat dose
- misses by 2 weeks, decrease by 0.1cc
- misses by 3 weeks, decrease by 0.2cc
- misses by 4 weeks, decrease by 0.3cc
- misses by 5 weeks, decrease by 0.4cc
- misses by >6 weeks, schedule must start back at beginning (Vial 1, 0.1cc)

Example: Pt received shot on January 11 and is on maintenance for environmental shots, their next shot is due the week of February 11, but they come in on February 25, the dose must be decreased by 0.2cc and built up by 0.1cc weekly until maintenance is achieved.

**\*\*\*If patient's dose is cut back, rebuild back up by 0.1cc weekly until back to maintenance \*\*\***

## **ALL SHOT APPOINTMENTS**

Always ask/tell patient:

- 1- Did they have any reaction from the last shot? Record on chart
- 2- Have they started any new medications?
- 3- Is the patient pregnant?
- 4- Have they done any exercises in the past 2 hours? Remind to avoid for 2 hours after
- 5- Ask patient if they have a cold, fever or trouble breathing (asthma exacerbation)
- 6- Remind patient they must remain in office for 30 minutes after shot, and then remind the patient again after the shot is given
- 7- VERIFY:
  - a. Have patient verify their name on the immunotherapy vial
  - b. Check the dose and the ensure correct serum
  - c. Check if it is a new vial/check expiration date. **For environmental serums only:** if it is new, the dose must be reduced by half (eg. If regular dose is 0.5cc, then reduce to 0.2cc and build up weekly to avoid systemic reaction)
- 8- Offer ice pack

**\*\*\*Patient must remain in office for 30 minutes after shot\*\*\*  
(With physician available)**

## **STARTING A NEW ENVIRONMENTAL VIAL**

- For all new environmental serums, the dose must be decreased by at least 50% (If maintenance dose (vial 4) is 0.5cc, then reduce to 0.2cc (vial 4)), and then built back up by 0.1cc **weekly**.
- This is because the vials lose potency over time, therefore the new vials will be more potent than the old ones and may cause a systemic reaction if given at higher dose.

## **REACTIONS**

### Large local reactions:

- Area red raised and itchy (large locals can be expected with venoms)
  - o Offer ice packs and antihistamines

### Mild systemic reactions:

- Immediate mild rhinoconjunctivitis
  - o Next appointment repeat previous dose and if tolerated well, increase dose by 0.05cc **weekly**

### Generalized systemic reactions:

- Rapidly spreading hives/generalized itching, hives
- Difficulty breathing/chest tightness
- Throat tightening/change in voice (hoarseness)
- Faintness
- Flushing, perspiration
- Pallor
- Cyanosis
- Syncope

## **TREAT AS MEDICAL EMERGENCY – At the first sign of any 1 or more of these symptoms**

- Place tourniquet above injection site (**optional**)
- Administer Epinephrine (0.01cc/kg to max of 0.5cc) 1:1000 **intramuscularly into thigh**. This may be repeated at 5-10 minute intervals as needed
- Give an additional 0.1cc of epinephrine into the site of allergen injection to slow allergen absorption (**optional**)
- Be prepared to administer IV fluids in case of shock.  
**Shock/drop in blood pressure is the main reason for death in anaphylaxis**
- Consult Allergist before giving further injections

## **STARTING A NEW VIAL – VENOMS – patients on maintenance only**

For new vials, the dose does **not need to be reduced**, as venom serums do not lose their potency over time. Therefore the patients schedule can be maintained.

### **FOR VENOM IMMUNOTHERAPY ONLY:**

Maintenance dose should be given every:

- 4 weeks for the first year
- For the second year it may be given every 6 weeks
- For the third year it may be given every 8 weeks if the patient wishes

NOTE: The shots must be given consistently, if the patient requires the dose to be dropped due to missed appointment etc, then the schedule must go back to every 4 weeks

## **WHO SHOULD NOT GET IMMUNOTHERAPY:**

- Patients who are **on beta-blockers** – these patients are at risk for severe reactions and are less responsive to treatment
- Patients with **uncontrolled asthma, or FEV <70%** – if they are having an exacerbation, the shot must be postponed.
- Patients who are on **ace-inhibitors** must not take medication the day of the shot
- **Pregnant patients** maintenance dose must be cut in half, and build up **should not** be done during pregnancy. A pregnant patient is at risk for miscarriage if a systemic reaction occurs.

## Diluting Venoms

- Each **new** patient should receive:
  - o 1 vial with venom label containing powder
  - o 1 vial of 9cc sterile albumin saline
  - o 1 vial of 4.5cc sterile albumin saline
  - o 2 vials of 1.8cc sterile albumin saline
- Label 1 vial of 1.8cc sterile albumin as: 10ug/ml (single venom) or 30ug/ml (mixed venom)
- Label 2<sup>nd</sup> vial of 1.8cc sterile albumin as: 1ug/ml (single venom) or 3ug/ml (mixed venom)
- Use vials containing 9cc and 4.5cc sterile albumin to withdraw 11cc total (ie 9cc+2cc) and inject into vial containing powder to reconstitute. Swirl vial to mix thoroughly.
- Using sterile technique, withdraw 0.2cc of serum from the reconstituted powder vial and inject into vial labeled 10ug/ml or 30ug/ml. Swirl vial to mix thoroughly
- Withdraw 0.2cc from vial labeled 10ug/ml or 30ug/ml and inject into vial labeled 1ug/ml or 3ug/ml. Swirl vial to mix thoroughly

Please see diagram

NB: Single venoms include: wasp, honey bee, yellow jacket, yellow hornet, white-faced hornet: concentration = 100ug/ml, 10ug/ml, 1ug/ml

Mixed venoms will be labeled as 'mixed venoms': concentration = 300ug/ml, 30ug/ml, 3ug/ml

### Expirations:

100ug/ml	12 months after reconstitution
10ug/ml	3 months after dilution
1ug/ml	1 month after dilution

ADD 11cc (will need to use both 9cc vial and 4.5 cc vial to make a total of 11cc)

**STERILE ALBUMIN**

