IMMUNOTHERAPY DOSAGE – INJECTABLE EXTRACTS

Successful immunotherapy is accomplished by subcutaneous injection of therapeutic allergens in increasing dosages until the maximum dose is reached. In the course of the treatment, hypersensitive patients may reach this level before the standard dose is reached. This level often associated with increased pruritus, which may last for several hours after injection. At this point, a specific maintenance dose for the patient should be considered. Thus, the dosage of immunotherapy and injection interval must be established during the course of therapy for each animal. The schedule is provided as a general guide. For each animal, dosage should be individualized based upon the sensitivity to the allergens injected and continually monitored by the response to immunotherapy. A schedule of treatment must be determined by a veterinarian for each animal.

SUGGESTED DOSE FOR IMMUNOTHERAPY

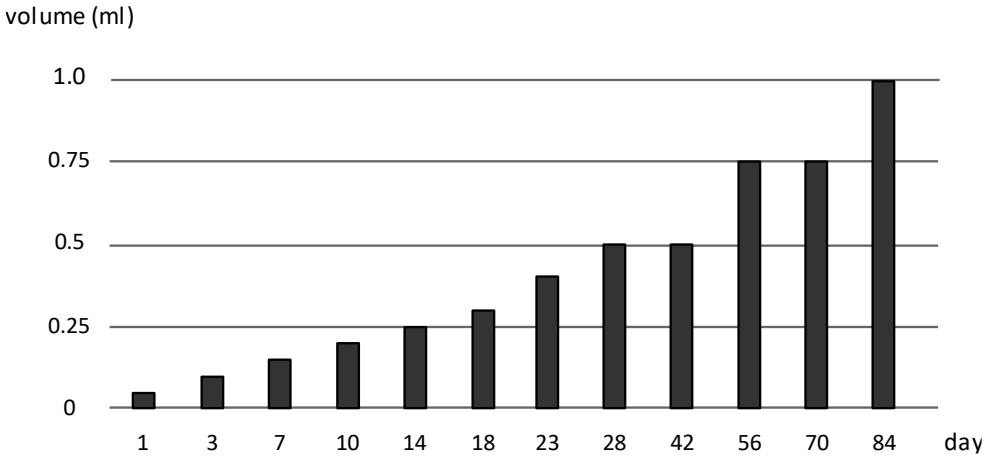
Heska Immucept consists of a single 10ml vial. The administration volume is progressively increased up to the maintenance dose. Subsequently, there is no difference between the vial used for the initiation and the maintenance of the treatment.

The allergen extracts in the Heska IMMUCEPT treatment are measured in PNU/ml. PNU accounts for Protein Nitrogen Units which is a unit used to measure the concentration of allergen extracts. Allergen extracts in Immucept are compounded at 20'000PNU/ml for pollens and 5'000PNU/ml for mites.

INITIATION OF THE TREATMENT

The treatment starts with a volume of 0.05ml which is progressively increased till the recommended maintenance dose (1ml) which is reached about 3 months after starting the treatment.

If the during the initiation phase the injections are well tolerated by the patient, the protocol is followed as shown.

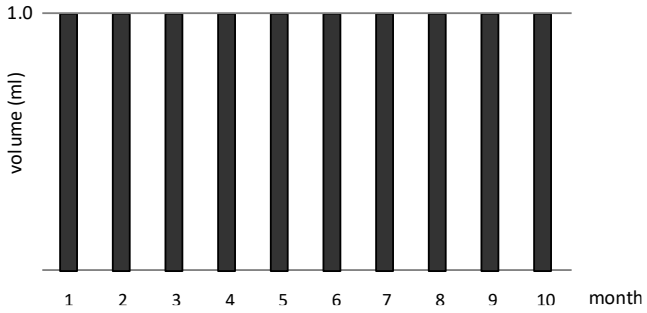


Day	Volume (mL)
1	0.05
3	0.10
7	0.15
10	0.20
14	0.25
18	0.30
23	0.40
28	0.50
42	0.50
56	0.75
70	0.75
84	1.00

TREATMENT MAINTENANCE
For simplicity and compliance, the recommended schedule proposed with the Immucept treatment consists of an injection of **1ml monthly**.

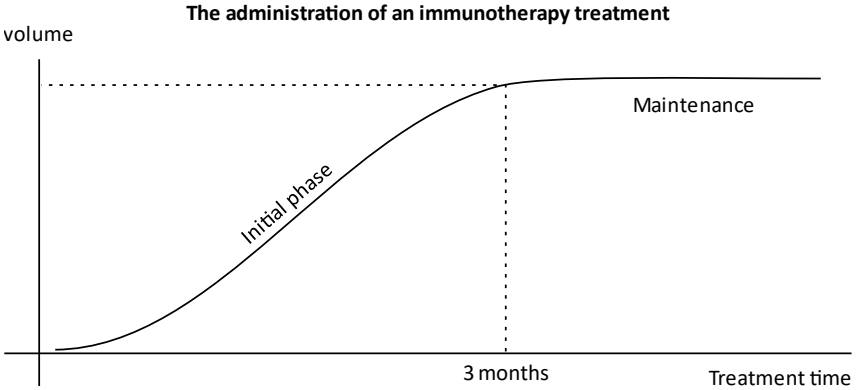
Since Heska Immucept is a 10ml vial, the volume of each vial assures 10 months of treatment.

The immunotherapy treatment; standard protocol



OVERVIEW OF AN IMMUNOTHERAPY TREATMENT

The administration of an immunotherapy treatment

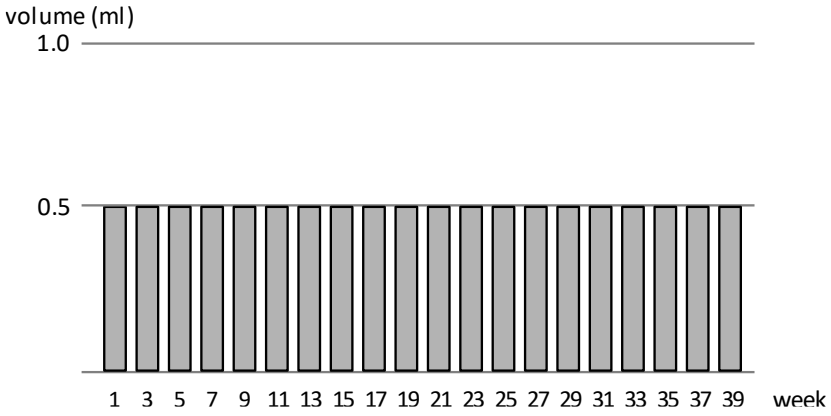


Sensitive patients (local reactions)

In cases where the patient may show sensitivity to the 1ml maintenance dose (itchiness, pruritus), it is possible giving smaller doses at closer intervals. A suitable protocol could be **0.5ml at 2 weeks interval.**

Some authors believe that the efficacy of the treatment is increased when the treatment is administered at lover volumes but with shorter frequencies of administration.

The immunotherapy treatment; sensitive patients



LOCAL REACTIONS
It is not unusual for the animal to experience temporary discomfort after the injection. A small area of swelling may occur at the site of injection producing some soreness. These reactions may be reduced by gently massaging the injection site(s) after the injection, decreasing the dosage, or administering the quantity at two or more sites.

THE MAXIMUM TOLERATED DOSE

The treatment schedule provided has been successfully used for many years. However, it may be necessary that a specific dose be established by the veterinarian for a patient. If the patient shows sensitivity after a particular dose, it may be an indication that the maximum tolerated dose might have been attained for that patient.

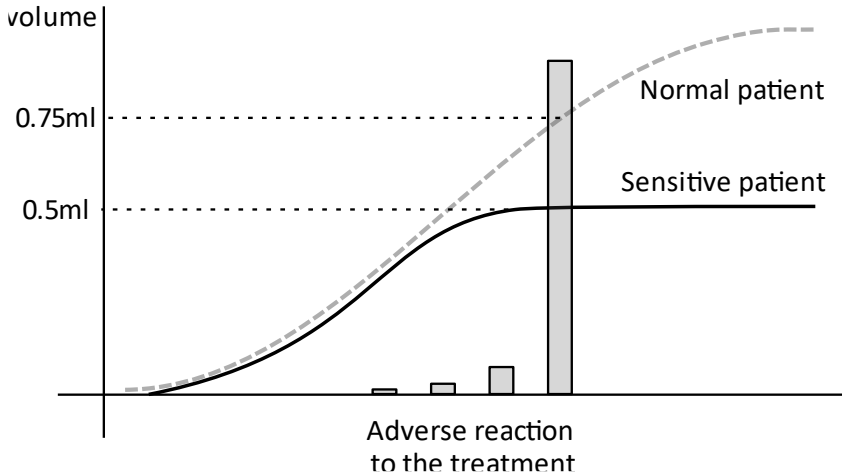
An example

The illustration shows the course of the treatment administration to a patient which shows a strong reaction at a 0.75ml. At the next injection the patient was given 0.5ml and the dose was well tolerated which was followed by a another 0.75ml dose. The same sensitive reaction as the 1st time was observed. It was determined that the maximum tolerated dose for this patient was 0.5ml. It is at this dose at which the patient would have to be maintained.

Injection #	Volume ml	Observations
6	0.3	Tolerated
7	0.4	Tolerated
8	0.5	Tolerated
9	0.75	Local reaction, increased pruritus
10	0.5	Tolerated
11	0.75	Local reaction, increased pruritus
12	0.5	Tolerated, dose used for maintenance

Each patient may react differently at a different injection dose, therefore different maximum tolerated doses could be observed at different concentrations. The frequency of this phenomenon is nonetheless low.

The immunotherapy treatment dose on a sensitive patient



What to do when a patient shows strong reactions when receiving the 1st injection

Although this phenomenon is very rare, it may happen that a patient shows a strong reaction at the 1st injection (0.05ml, 1000PNU). In this case it is recommended to lower the concentration by diluting the treatment solution 1/5 with saline solution or water for injection (sterile preparation).

Diluted 1/5	Day	Volume	PNU
	1	0.05ml	200
	3	0.05ml	200
	7	0.1ml	400
	10	0.2ml	800
Standard solution	14	0.05ml	1000
	18	0.1ml	2000

From this point the normal protocol is followed.

Comments:

- To preserve the sterility of the solution, it is recommended to prepare the 1/5 dilution before each injection.

The initial doses on a strong hypersensitive patient