Polistes: situation in Italy

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Polistes genus

Phylogenetic tree of Vespidae. The tree was obtained by the alignment of Ag5 sequences from various Vespidae. It was obtained with the TreeView plot program.

Characterization of the major allergens purified from the venom of the paper wasp Polistes gallicus

Pantera B, et al
Biochimica et Biophysica Acta (BBA) - General Subjects, Volume 1623, Issues 2–3, 2003, 72–81
Spread of Polistes worldwide

**Worldwide:**

- *P. dominulus* has successfully invaded South America (Chile) and North America and is rapidly expanding its range in the United States.

- *P. dominulus* has a high rate of reproductive increase, and therefore is an excellent invader.
...in Italy

- Absence of entomological data about distribution of Polistes in Italy.

Most important in Italy are:
- Polistes dominulus
- Polistes gallicus
- Polistes biglimus
Estimated data from the Italian market year 2015

Total: 22166 all venom immunotherapy packs sold in 2015
= 13000 patients receiving VIT
Data from Como (North Italy)

*Polistes dominulus* 13.4%
*Vespula spp* 73.1%
*Apis mellifera* 9.5%

The large variability of prescription of VIT with *Polistes dominulus* suggests that the presence of this vespid in different regions of Italy is variable as well.
Patients selected for VIT with Polistes and Vespula according to CAP-inhibition data

<table>
<thead>
<tr>
<th>Species</th>
<th>North East</th>
<th>North West</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vespula spp.</td>
<td>31%</td>
<td>52%</td>
</tr>
<tr>
<td>P. dominulus</td>
<td>58%</td>
<td>28%</td>
</tr>
<tr>
<td>Both</td>
<td>11%</td>
<td>20%</td>
</tr>
</tbody>
</table>

Wasp venom allergy screening with recombinant allergen testing. Diagnostic performance of rPol d 5 and rVes v 5 for differentiating sensitization to Vespula and Polistes subspecies.

Beatrice Cerisio¹, Enrica Madonna², Giuseppe Allocca², Nicoletta Mancini³, Carlo Lombardo³, Giancarlo Senaceo², L. Polli²

Comparing the utility of molecular diagnosis and CAP-inhibition in identifying the really causative venom in patients with positive tests to Vespula and Polistes species.

Eva Ronca, Silvia Pennò, Elena Mulinati, Valeria Frattoni³ and Cristoforo Iacono²
Identification

Polistes species

Vespula species
CRD enables to measure specific IgE to single venom components

In vitro diagnosis of Hymenoptera venom allergy and further development of component resolved diagnostics

Ebo DG et al

May sensitivity of CRD for vespid venoms be improved?

Available recombinant allergens from vespid venom

* Phospholipase A 1 = Ves v 1
* Antigen 5 = Ves v 5 Pol d 5

Component-resolved diagnosis of vespid venom-allergic individuals: phospholipases and antigen 5s are necessary to identify Vespucla or Polistes sensitization


Allergy 67 (2012) 528–538

Component-resolved diagnosis in vespid venom-allergic individuals.

Galindo-Bonilla, A. Galán-Nieto, T. Alfaya-Arias, T. García-Rodríguez, C. de la Roca-Pinzón, F. Feo-Brito

Importance of the CAP-inhibition/CRD ratio

- When the ratio between sIgE to Ves v 5 and Pol d 5 recombinant allergen is >50% or vice-versa there is concordance with CAP-inhibition.

- When sIgE to a recombinant is double than the other there is concordance with CAP-inhibition.
Conclusion:

- In Italy, entomological data on distribution of *Polistes dominulus* is lacking.
- From information obtained by VIT prescription the importance of this species is apparently lower than in Spain.
- New recombinant allergens are needed to improve the diagnosis.

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