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# Hymenoptera Venom Allergy. A closer collaboration is needed between allergists and emergency physicians

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## KEY WORDS

*hymenoptera venom allergy;  
anaphylaxis; specific immunotherapy;  
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## Summary

**Background.** Hymenoptera stings are sometimes fatal in venom-allergic patients. Fatalities mostly occur in previously stung subjects, especially those with a history of systemic reactions, and could be avoided if patients were properly informed of the existence of a prevention strategy for insect stings, referred to an allergy follow-up and prescribed auto-injectable epinephrine and/or venom-specific immunotherapy (VIT). We sought to assess knowledge and awareness of Hymenoptera Venom Allergy (HVA) in a small sample of Emergency Physicians in our geographic area. **Methods.** An eight-point questionnaire on HVA was administered to Emergency Department physicians working in the six largest ED in Naples. **Results.** Twenty-seven physicians completed the questionnaire. Twenty/27 (74%) were unaware of the classification of Hymenoptera sting reactions, 11/27 (41%) were unaware of the existence of prevention strategies such as VIT, 18/27 (67%) did not refer HVA patients to a specialist follow up. One/27 (4%) prescribed auto-injectable epinephrine and 100% wish better information on the topic. **Conclusions.** In our survey we found a number of ED physicians whose knowledge of HVA, beyond the emergency treatment, is not satisfactory. A closer collaboration among ED physicians and allergists is urgently needed.

## Introduction

Allergic systemic reactions to Hymenoptera stings cause significant morbidity, impairment of quality of life, and are sometimes fatal. Many fatalities occur in previously stung subjects, especially in those with a history of systemic reactions (1). Hymenoptera Venom Allergy (HVA) patients who have experienced an anaphylactic reaction and also have detectable venom - specific IgE or positive skin test - should be prescribed a Venom Specific Immunotherapy (VIT) (2). An allergy follow-up after an episode of anaphylaxis is advisable in preventing further episodes (3-5), and supports current anaphylaxis guidelines (6). Nevertheless, the number of patients with anaphylaxis who are correctly followed-up after the treatment in Emergency Department (ED) remains low, and a closer collaboration between ED physicians and allergists has become an urgent need (5). In our outpatient

activity we noticed that most HVA patients come spontaneously, after having been stung two or more times, while few patients are referred to our Allergy Unit after treatment in an ED. Our survey aims at assessing the level of knowledge and awareness of HVA among ED Physicians of Naples and surroundings area.

## Methods

We organized a one-afternoon meeting on anaphylaxis and sent an invitation to the six largest hospital EDs in Naples metropolitan area. All the ED physicians who were present at the meeting were invited to anonymously complete an 8-point questionnaire concerning different aspects of HVA that we had previously prepared (see **table 1**). All the questionnaires were filled and collected before attending the meeting. In order to reduce the risk of selection bias all the doctors who were not on duty in that day were asked to come to the meeting.

## Results

Twenty-seven physicians participated in the study. All of them were specialized in Emergency Medicine. All of them completed the questionnaire. As result, very few of the ED physicians who participated in the study demonstrated a good knowledge of HVA. Twenty/27 (74%) were unaware of the classification of Hymenoptera sting reactions (7). Eighteen/27 (67%) do not refer HAV patients to a specialist follow up. Twenty-five/27 (93%) give epinephrine as first-line treatment of anaphylaxis but only 1/27 (4%) had ever prescribed auto-injectable epinephrine. Finally, 100% of physicians wish better information on the topic (**table 1**).

## Discussion

This is the first time that such a survey has been performed in Italy. Our experience suggests that among ED physicians, at least in Naples area, there may be insufficient knowledge of the risks associated with HVA. Eighteen doctors (67%) admit they don't refer the patient to the specialist follow-up, which is consistent with the results of other studies (6), that means two-thirds of patients receive little or no information about a preventive strategy. In contrast with some studies (8), twenty-five out of the twenty-seven ED doctors (93%) administer epinephrine as first-line treatment of anaphylaxis. Only one in the study group had ever prescribed auto-injectable epinephrine. These data are generally consistent with the low rate of auto-injector

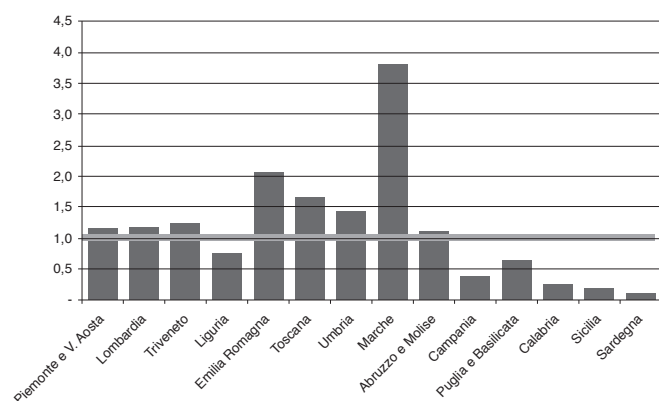
prescriptions worldwide (9), specifically in EDs (10) and the fact that in Italy ED Physicians cannot prescribe auto-injectable epinephrine free of charge. In Italy only Allergists can do so. In Italy there are some regions such as Marche or Toscana in which the number of VIT prescription is several fold higher compared to other regions such as Campania or Calabria and southern Italian regions in general ([www.assobiomedica.it](http://www.assobiomedica.it)). At least two explanations seem plausible in accounting for this discrepancy. Both are disheartening. First, many patients from southern Italy are forced to travel north in order to get their prescription, which carries both a financial and social burden. The second and even more disturbing is that most patients are simply lost at follow-up. VIT prescription is mandatory for those patients who have a history of anaphylactic reaction after a hymenoptera sting and who also have detectable venom-specific IgE (6). Therefore, we believe that the number of VIT/year/million inhabitants (a sort of "VIT Index") may be considered an indirect marker of the clinicians' awareness level in a particular region (**figure 1**).

Our study has some limitations. Firstly, the small number of interviewed physicians who made up a group was geographically limited to the confines of the Neapolitan area. For this reason, we are now carrying out a larger randomized study involving ED Physicians and General Practitioners from other Italian regions. Another point of weakness is the study population selection. We knew that a meeting on anaphylaxis might result in attracting a specific group of physicians, either because they

|   |  |      |          |
|---|--|------|----------|
| 1 | Do you know how to classify the Hymenoptera sting reactions?                                     | Y    | 7 (26)   |
|   |  | N    | 20 (74)  |
| 2 | Do you prescribe auto-injected epinephrine?  | Y    | 1 (4)    |
|   |  | N    | 26 (96)  |
| 3 | Do you know how likely it is an anaphylactic shock in a patient with a former Systemic Reaction? | Y    | 9 (33)   |
|   |  | N    | 18 (67)  |
| 4 | Do you know if a long term prevention strategy for HVA patients does exists?                     | Y    | 16 (59)  |
|   |  | N    | 6 (22)   |
|   |  | ?    | 5 (19)   |
| 5 | Do you usually send the HAV patients to an Allergy Unit?   | Y    | 9 (33)   |
|   |  | N    | 18 (67)  |
| 6 | Do you utilize Epynephrine as first line treatment for anaphylaxis?                              | Y    | 25 (93)  |
|   |  | N    | 2 (7)    |
| 7 | Which is, to your opinion, the best way for the epinephrine injection?                           | s.c. | 2 (7)    |
|   |  | i.m. | 13 (48)  |
|   |  | e.v. | 12 (45)  |
| 8 | Would you like to be better informed about the problem?  | Y    | 27 (100) |
|   |  | N    | 0 (0)    |

are already quite knowledgeable about the issue or because they recognize gaps in their knowledge on the topic. We sent the meeting invitation to the six larger ED departments of our area. Only those physicians who were free of work commitments that day could participate. This should have reduced the risk of selection bias. We are aware that twenty-seven doctors cannot be considered representative of all ED physicians in the Naples area and that many other emergency physicians in our area might have had a better knowledge of the subject. Our only scope is to bring to the general attention the fact that the problem may, in some areas, be real. One could say that this is not a worldwide problem and that our study just reflects a small, geographically limited problem. Of course this may be true but nevertheless we believe that allergists and ED physicians should reflect and work together in order to verify the level of awareness of HVA in their own working area.

**Figure 1** - VIT Index (% VIT prescription / % inhabitants). Gray line (VIT index = 1,0) represents the equilibrium between the percentage of inhabitants and the number of VIT prescriptions for each Italian region. Values > 1: regions where the prescriptions are more than expected. Values < 1: Regions where the prescriptions are lower than expected. For example, Piemonte has 8% of Italian population and 8.1% of prescription. Campania has 10.2% of Italian population and 3.3% prescription, Marche has 2.6% of Italian population and 10% VIT prescription. Data refer to the whole Italian market (courtesy Anallergo, Florence, Italy).



## Conclusion

Many cases of Hymenoptera venom-induced anaphylaxis following a first-time reaction can be safely avoided through the correct preventive strategy. After ED physician treat the emergency event, patients should be referred to an Allergy Unit in order to assess their eligibility for VIT and for prescription of auto-injectable epinephrine. Our experience suggests that among ED physicians, at least in some areas, there may be insufficient knowledge of the risks associated with HVA and that better information is needed. Allergists should notice if the number of HVA patients they treat in their Allergy Unit or the VIT prescriptions number in their working area are some lower than expected. A closer collaboration between allergists and ED physicians may help patients with HVA who had experienced an anaphylaxis to avoid further life-threatening episodes in the future.

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