Large Local Reactions to Hymenoptera Stings Negatively Affect Quality Of Life to the Same Degree as Systemic Reactions

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Reactions to Hymenoptera stings usually produce pain, pruritus, erythema and mild inflammation at the site of the sting. Some patients present a large local reaction (LLR) which leads to inflammation greater than 10 cm in diameter which lasts over 24 hours up to 5-10 days [1].

Quality of life questionnaires are useful tools in daily clinical practice. In the case of Hymenoptera allergy, Elberink et al [2] developed a quality of life questionnaire for patients with SR following Hymenoptera stings (VQLQ) which showed a deterioration in the quality of life.

Between 2008 and 2015, the Hymenoptera Allergy Committee of the Spanish Society of Allergology and Clinical Immunology (SEIAC) undertook the translation into Spanish and the subsequent cultural adaptation of the VQLQ, as well as a cross-sectional and longitudinal validation of the questionnaire [3,4]. The questionnaire was validated in patients allergic to Apis, Vespula and Polistes (HiCaVi). The HiCaVi consists of 14 questions each with 7 possible answers and yields a score of between 1 and 7, representing low to high quality of life.
The hypothesis of our study is that the quality of life of patients with LLR is also impaired. Furthermore, we sought to compare our findings with those of patients with SR due to allergy to Hymenoptera venom.

Between 2016 and 2018, the Hymenoptera Allergy Committee of SEAIC conducted a multicenter study in 9 hospitals in Spain. A cross-sectional observational study was performed which included consecutive patients older than 14 years who attended Allergy departments reporting a LLR following a Hymenoptera sting in the previous two years. Professional beekeepers were excluded. After statistical analysis, we performed a post-hoc comparison with an historical control group of patients with SR included in the cross-sectional and longitudinal validation of the original questionnaire.

The study was approved by the Ethics and Research Committees of the participating hospitals. All patients were informed and gave their consent to participate in the study signing a written informed consent.

Qualitative variables are presented with their distribution as absolute and relative frequencies. Quantitative variables are summarized with means and standard deviations or medians and interquartile ranges when the data did not follow a normal distribution.

Qualitative variables were compared using the Chi-squared test or the Fisher exact test, when necessary. Comparison of means between two independent groups was made using the Student t test. For all tests the significance level was set at 0.05. Data processing and analysis was carried out using the statistical software package SPSS v21.0.

A total of 186 patients with a mean age of 43.87 years (SD 14.99) were included in the study. The results are included in Supplementary Table.
The mean score on the HiCaVi for the whole group was 4.1 (SD 1.53). We found no significant differences when we analyzed the questionnaire scores by age, gender, culprit insect, place of residence or location of the reaction. However, significant differences were found for the type of reaction as those patients with an immediate reaction had a significantly lower score than patients with a delayed reaction (immediate reactions 3.87 vs delayed reactions 4.36 $P = 0.031$).

The results from the quality of life questionnaire for the patients with LLR (4.1 [SD 1.53]) were compared with those obtained from the 186 patients with SR included in the cross-sectional and longitudinal validation of the questionnaire (3.86 [SD 1.55]). This yielded a nonsignificant difference of means of 0.23 ($P = 0.145$).

The results of our study show that patients with LLR due to Hymenoptera stings have a reduced quality of life. This loss of quality of life is similar to that experienced by patients who have SR to insect stings.

The prevalence of LLR ranges from 2.4 to 26.4% of the general population depending on the series consulted and is lower in children and higher in professional beekeepers (38%) [1,5]. Such variability may be related to the lack of homogeneity in the definition of LLR, the methodology used and the population studied [1,6].

It is estimated that the risk of developing a SR following a LLR is relatively low, ranging from 2 to 24%. Given the low risk, the indicated treatment is symptomatic and immunotherapy (IT) is not routinely recommended [1,7,8]. IT may be recommended in patients with a high exposure to stings, those who live far from healthcare facilities or in those whose fear of a new sting may affect their quality of life [9-10]. Therefore, measuring quality of life in clinical daily practice may prove useful in the initial
approach and in the decision of what treatment to implement in patients with a LLR following a Hymenoptera sting.

The lower score significant in immediate reactions may be due to the fact that patients perceive a reaction that occurs closer in time to the insect sting as being more dangerous, however they probably received early treatment too. The reactions that occurs several hours after the sting is seen as being more innocuous, even though in both cases the score obtained is low.

When we compared the results from the quality of life questionnaire, the patients with SR obtained a slightly lower score than patients with LLR although the difference was not statistically significant.

Our study has some limitations, mainly related to the clinical management of this type of patient. As we have mentioned, treatment of patients with LLR is symptomatic and therefore performing in vivo and in vitro studies does not form part of daily clinical practice. However, given that the objective of our study was different, such data have no effect on our overall conclusions. Furthermore, ours was a multicenter study conducted in centers in Spain. Therefore, further studies are required at the international level to confirm our findings.

This is the first controlled study to directly examine the difference in quality of life between patients with LLR and SR and to establish that both groups experience a reduction in their quality of life. The use of quality of life questionnaires in these patients may help in their initial assessment and support the decision to implement specific treatment with immunotherapy.
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Conflicts of interest

Dra. Alfaya T declares personal fees of ALK-Abelló, outside the submitted work. The rest of authors declare that they have no conflicts of interest.

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References


