Predictors of severe systemic anaphylactic reactions in patients with Hymenoptera venom allergy: importance of baseline serum tryptase—a study of the European Academy of Allergology and Clinical Immunology Interest Group on Insect Venom Hypersensitivity.

Abstract: BACKGROUND: Severe anaphylaxis to honeybee or vespid stings is associated with a variety of risk factors, which are poorly defined. OBJECTIVE: Our aim was to evaluate the association of baseline serum tryptase concentrations and other variables routinely recorded during patient evaluation with the frequency of past severe anaphylaxis after a field sting. METHODS: In this observational multicenter study, we enrolled 962 patients with established bee or vespid venom allergy who had a systemic reaction after a field sting. Data were collected on tryptase concentration, age, sex, culprit insect, cardiovascular medication, and the number of preceding minor systemic reactions before the index field sting. A severe reaction was defined as anaphylactic shock, loss of consciousness, or cardiopulmonary arrest. The index sting was defined as the hitherto first, most severe systemic field-sting reaction. Relative rates were calculated with generalized additive models. RESULTS: Two hundred six (21.4%) patients had a
severe anaphylactic reaction after a field sting. The frequency of this event increased significantly with higher tryptase concentrations (nonlinear association). Other factors significantly associated with severe reactions after a field sting were vespid venom allergy, older age, male sex, angiotensin-converting enzyme inhibitor medication, and 1 or more preceding field stings with a less severe systemic reaction. CONCLUSION: In patients with honeybee or vespid venom allergy, baseline serum tryptase concentrations are associated with the risk for severe anaphylactic reactions. Preventive measures should include substitution of angiotensin-converting enzyme inhibitors.

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