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ANAPHYLAXIS AFTER FIRST INGESTION OF CHAPULINES (GRASSHOPPER) IN PATIENTS ALLERGIC TO HOUSE DUST MITE, COCKROACH, AND CRUSTACEANS, IS TROPOMYOSIN THE CAUSE?

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Biography

William N Sokol was a board certified Internist (Northwestern) and Allergist (UCLA). He completed Undergraduation (BA) from Ohio State University (AED pre-Med honorary). Ohio State College of Medicine (Landacre research society award). He joined the clinical faculty of the division of Allergy at the University of California at Irvine immediately after his fellowship and currently a Clinical Professor of Immunology and Allergy at U C I where he give the basic immunology lectures to Medical Students and supervise training of Allergy fellows, including guiding their research efforts. His fields of interest have included basic research on β -adrenergic cell membrane receptors which resulted in several papers which contributed in part to the refutation of the β -blockade theory of the origin of asthma. Subsequent interests involved the descriptions of a several new causes of occupational asthma and clinical research on bacterial sinusitis, asthma, rhinitis and several new causes of anaphylaxis. He has published over 50 articles in the peer reviewed medical literature. His most recent work is on the description of a 30 kD tropomyosin found in a type of grasshopper called chapulines which are commonly ingested in Mexico and the USA. This dietary peculiarity is causing allergic reactions including anaphylaxis in unsuspected patients with underlying crustacean HDM and cockroach allergy.

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Two patients presented with a history of anaphylaxis (one with loss of consciousness, the other with laryngeal edema, urticaria, angioedema, and near syncope) immediately after eating chapuline from Oaxaca, Mexico. Prick puncture testing to grasshopper antigen was 4+ in both patients and negative in five non-allergic controls. Both patients gave a prior history of urticaria/angioedema/laryngeal edema following ingestion of crustaceans. *In vitro* IgE specific antibodies to crustaceans, dust mites, and cockroach were positive in both patients. Total IgE was greater than 2000 IU/mL in one patient, and 92.6 IU/mL in the other (nl<87 IU/mL). Tryptase levels in both patients were not elevated. Specific IgE inhibition studies reveal that grasshopper extract contains antigens capable of binding to patient's specific IgE to crustaceans, cockroach, and mites, indicating the presence of a cross reacting pan-allergen in grasshopper extract. Immunoblot analysis of the grasshopper extract revealed the presence of a 30 kD molecular weight protein in grasshopper and chapuline and a 38 kD molecular weight protein in shrimp, which bound patient-specific IgE antibody. Western Blot analysis of the extract probed with anti-tropomyosin antibody revealed those antigens to be tropomyosin. Although previous reports in the literature of allergic rhinoconjunctivitis, contact urticaria, and asthma after inhalation of grasshopper are well known, this is the first well-documented report of anaphylaxis following ingestion of grasshoppers. Ingestion of insects is very popular in Asia, the Middle East, South and Central America, and particularly in Mexico and in Southern California. The purpose of this report is to alert the medical community and the public to the fact that there is an increased risk of allergic reactions to the ingestion of grasshoppers in patients with a prior history of crustacean, house dust mite, and/or cockroach allergy.