

WAO Short-Term Fellowship Report

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Project Title :	Skin prick test in the early diagnosis of atopy in infants and children and immunotherapeutic modalities
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Date of Fellowship:	Nov 11-28 ,2006

The progress achieved during the fellowship:

The project objective was to identify the major allergens to which infants in my country are sensitized and the possible immunotherapeutic interventions needed. It is related to one of the **WAO** research priorities namely allergen characterization and standardization.

I started training on Monday, November 13, 2006, at San Martino hospital, Padiglione Maragliano department, Genoa under the supervision of Prof. Walter Canonica. The work in the clinic starts from 8:30 am till 1:30 pm and sometimes extends to 5:00 pm. The number of patients who attend the clinic on a daily basis is around 20, including new and follow up cases. It was a short-term fellowship that lasted for two weeks.

The skin prick-puncture tests are recommended as the primary test for the diagnosis of the IgE-mediated allergic diseases. Allergen-specific immunotherapy is a well documented treatment in allergic diseases; it is indicated as a supplement to allergen avoidance and to pharmacotherapy. The skin prick test is performed in patients with suspected allergic diseases. I performed the skin prick testing using a disposable hypodermic needle. I also learned how to do the prick-prick test which consists of pricking, with the same needle, the fresh raw food and then the skin, for the diagnosis of food allergy.

We used standardized allergen extracts, which increases the sensitivity and reproducibility of the skin prick test, with good correlation with patients' symptoms. Precautions for skin prick test were strictly respected. Skin reactions considered as indicative of clinical allergy are wheal diameter of over 3 mm and flare diameter of over 10 mm. The ratio of the size of the wheal and flare induced by the allergen to the size of those elicited by the positive control solution is considered; in cases of a weak positive skin reaction in the presence of a highly suggestive history of a response to a particular allergen, specific serum IgE is ordered.

Immunotherapy is indicated for confirmed IgE-mediated allergic diseases using

standardized products with documented clinical efficacy and safety. For instance, venom immunotherapy is indicated in children and adults with a history of severe systemic allergic reactions including respiratory and/or cardiovascular symptoms and documented by sensitization to the respective insect as determined by either skin tests and/or specific serum IgE tests. The patients are informed in an objective way of the principles of different treatment options, the clinical efficacy including long-term efficacy, symptom reduction versus disease modifying treatment, duration of treatment, side effects, financial costs and importance of commitment to regular attendance for treatment.

For subcutaneous immunotherapy, the outer aspect of the upper arm is used, where deep subcutaneous injections are given by slow injection, and aspiration is attempted every now and then. Patients are observed for 30 minutes after each injection and are informed not to leave the clinic during the observation period and to immediately inform the staff in case of early symptoms of systemic reaction. Essential equipment for the treatment and monitoring of systemic anaphylactic reactions include:

- Adrenaline (1mg/ml) for injection.
- Antihistamine, corticosteroid, and a vasopressor for injection or oral treatment.
- Syringes, needles, tourniquet, and equipment for infusion.
- Saline for infusion.
- Oxygen and suction equipment.
- Silicone mask and equipment for manual ventilation.
- Equipment for measurement of blood pressure.
- Forms for recording the course and treatment of anaphylaxis.

During my fellowship, I did not observe any systemic side effects to subcutaneous immunotherapy. The induction regimen is conducted either as conventional (one injection per week) or alternatively as rush immunotherapeutic regimen. The maintenance dose is often predefined by the manufacturer; however, the optimal dose is individualized, aiming at high clinical efficacy without major side effects.

Sublingual-swallow immunotherapy (**SLIT**) is also used in patients with confirmed IgE-mediated allergic diseases as a safer and more convenient alternative to subcutaneous immunotherapy. **SLIT** would be an optimal therapy for use in the pediatric age groups, where the natural history of allergy can be to some extent modified. The standardized product is given by placing it directly under the tongue for 2 or 3 minutes and then being swallowed. Because the treatment is given to the patient at home, the patient/caregiver is given clear and simple written instructions about what to do in the event of an adverse reaction.

Through this **WAO** short-term research fellowship, I was trained to properly perform and interpret the results of skin prick tests. I have also gained knowledge about the various methods of allergen-specific immunotherapy. This experience will help me provide better care for my patients and will improve my research skills in screening for sensitizing allergens in the Egyptian environment. I have already started to disseminate

this knowledge to my colleagues in the Pediatric Allergy and Immunology Unit of the Ain Shams University Children's Hospital, Cairo. It is a referral center that receives children from all over the country and sometimes from adjacent countries. I feel so grateful to the WAO for offering me this opportunity.