POSITION

Project Title/ Job position title

Thymic Stroma Lymphopoietin, IL-33 and periostin in Hospitalized Infants with Viral Bronchiolitis and their role in the development of recurrent wheezing and asthma/ Pre-doctoral position

Area of Knowledge (choose only one)

Life Science Panel

Medicine, Public Health, Sports Science, Nutrition, Clinical Psychology, Healthcare Management

Research Project/Research Group Description

Background:

Bronchiolitis is a respiratory viral infection and the leading cause of hospitalization in infants. Respiratory syncytial virus is the most frequent virus responsible, followed by rhinovirus, and others. It is known that after a first episode of bronchiolitis up to 30% of children will develop episodes of recurrent wheezing. Thymic stromal lymphopoietin(TSLP), periostin and IL-33 are involved in the development of Th-2 response after viral infections, but they are not been studied in infants with bronchiolitis.

Aims:

Our group is conducting an ongoing project to know the response trigger to the viral infection in hospitalized children with bronchiolitis through the detection in the nasopharyngeal aspirate(NFA) of interleukynes(ILs), as well as to correlate the IL´s pattern with the severity of the acute episode and with the development of recurrent wheezing and asthma in the long term.

Methods:

A follow-up cohort study of children < 24 months hospitalized for bronchiolitis is being recruited. Epidemiological and clinical evolution is collected through a questionnaire and NFA samples are taken. Etiological diagnosis is performed by multiple polymerase chain reaction detection of 16 respiratory viruses at the Respiratory Virus & Influenza Unit at the National Microbiology Center(ISCIII). TSLP, periostin, IL-10, IL-33 and IFN-γ are quantified at the Immunology Laboratory (IIS Jimenez-Díaz Fundation). A control group of healthy children of the same age is being recruited. After the acute episode, we follow up the patients in a pulmonology consultation. To date 159 patients and 43 controls have been recruited. Preliminary results confirm that TSLP, IL-33 and IL-10 were detected in NFA of infants hospitalized for bronchiolitis, but not in healthy controls. ILs pattern is different in children

with recurrent wheezing in the first 2 years. We are planning to recruit a larger cohort of children and to follow up until age of 6 to study the development of asthma.

Job position description

Infectious diseases are the most frequent pathology in childhood. Our group is focused in the study of pediatric infections with special attention to those associated to viruses. The acute respiratory infections (ARIs) of lower respiratory tract are the most frequent infectious diseases in humans and these suppose at least 4 million of deaths in 2008 in the world. A high proportion of these infections are related with viral etiology and particularly in children. Metagenomics could allow recognizing new viruses and also permits a deeper knowledge of traditional respiratory virus groups. We are also interested in the study of the immunological response of the infants to the viral infections, and the mechanisms that allow develop recurrent wheezing, or asthma (the most frequent chronic disease in children). We are a multidisciplinary team: we include clinicians, microbiologists and basic investigators. This point has a special relevance in order to understand the complicated pathogenesis of the illness.

The research fellow will coordinate and be the nexus of all team members that are currently involved in this project: study nurses, pediatric infectious diseases specialists, microbiologists, immunologist and laboratory assistants. The applicant is expected to learn all the laboratory techniques that are used in the aforementioned project. Regarding virological studies, the fellow will visit the Respiratory Virus and Influenza Unit at the National Microbiology Center (Instituto de Salud Carlos III), to become familiar with nucleic acid extraction and multiplex reverse transcription-nested polymerase chain reaction (RT-PCR) assays. The applicant will also work at the Immunology Laboratory of the IIS Jimenez Díaz Fundation where is expected than the candidate learn the PCR assays for detecting interleukins.

GROUP LEADER

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Research project/Research group website:
http://idipaz.es/PaginaDinamica.aspx?IdPag=53&Lang=EN