POSITION

Project Title/ Job position title

Pathogenic Role of Respiratory Viruses in Children with Primary Humoral Immunodeficiencies / Pre-doctoral Position

Area of Knowledge

Life Science Panel

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

Research Project/Research Group Description

Background & Aims:

Respiratory infections are the main cause of morbidity in children with congenital humoral immunodeficiency (CHI). The pathogenic role of respiratory viruses is poorly understood. The aims of this project are: (1) To describe clinical presentation of viral respiratory infections in children with CHI. (2) To describe the shedding of respiratory viruses in nasopharyngeal aspirate of children with CHI. (3) To analyze the relationship between the presence of respiratory viral infections in children with CHI with simultaneous bacterial infection or with worsening of symptoms and/or measured lung function. (4) To compare viral isolations in nasopharyngeal aspirates obtained from children with CHI with those observed during the same epidemic periods among their household members.

Methods:

This is an ongoing prospective study that started in January 2017. It is a case / control study, carried out in two National Primary Immunodeficiency Reference Units (La Paz University Hospital-Madrid, and Virgen Del Rocio Hospital-Seville) in patients younger than 20 years with CHI requiring gammaglobulin replacement therapy and healthy controls (household members). Nasopharyngeal aspirates are collected monthly and in case of respiratory symptoms. Additionally, a monthly clinical questionnaire is fulfilled by patients and parents, and a lung spirometry is performed. During the study period at least a diffusion capacity test (DLCO) will be done.

The presence of respiratory viruses is being tested using three RT-nested PCR assays to detect 16 respiratory viruses (influenza A, B, and C, parainfluenza 1–4, coronavirus 229E and OC43, enterovirus, rhinovirus, respiratory syncytial virus A and B, metapneumovirus, bocavirus and adenovirus) at the Respiratory Virus and Influenza Unit at the National Microbiology Center (Instituto de Salud Carlos III, Madrid, Spain).

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. We are also interested in the study of the immunological response of the children to the viral infections. 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 all team members that are currently involved in this project: study nurses, pediatric infectious diseases specialists, pediatric immunology and pneumology specialists, microbiologists 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 learn the performance and interpretation pulmonary function tests in the Pneumology Department. Additionally, the fellow will also be trained in the interpretation of immunology parameters.

GROUP LEADER

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