Gamal El Sawaf, J Antivir Antiretrovir 2016, 8:5(Suppl)
http://dx.doi.org/10.4172/1948-5964.C1.032

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Molecular diagnosis and prevalence of *Human metapneumovirus* infection among Egyptian infants with acute viral bronchiolitis

Background & Aim: Despite improved methods for identifying viral pathogens in cases of acute bronchiolitis, the etiology remains undetermined in a significant number of patients. *Human metapneumovirus* (hMPV) is one of the emerging respiratory viral pathogen that causes a spectrum of illnesses that range from asymptomatic infection to severe bronchiolitis. The aim of this study was to identify the prevalence of hMPV that contribute to bronchiolitis in infants and young children in Egyptian populations and to determine the comprehensive clinical characterizations of disease.

Methods: Nasal swabs for viral detection were obtained from 117 Egyptian infants, clinically diagnosed as acute bronchiolitis at the Alexandria University Children's Hospital during the period from January to April 2015. Clinical and demographic data were obtained from parents and medical records; hMPV was detected by means of a reverse-transcriptase polymerase-chain-reaction assay. Indirect immunofluorescent assay (IFA) assay methods were used to detect the presence of any of the most common respiratory viruses (respiratory syncytial virus (RSV), Influenza virus A, Parainfluenza virus types 1-3 and adenovirus) that might be involved in infection.

Results: In our study, 76% of the cases were positive at least to one or more of the seven mentioned viruses. hMPV was detected in 19 (16 %) of the 117 children. The age-related incidence of hMPV infection was higher than that of RSV-infected children. Only 5 patients (4%) had hMPV as the sole respiratory viruses, whilst 14 cases (12%) had a co-infection of hMPV with other respiratory viruses. Clinical symptoms of hMPV were found to be similar to those seen with other respiratory viral infections. The most significant risk factors for acute bronchiolitis in our study groups were young age, exposure to tobacco and living in overcrowded environments.

Conclusions: *Human metapneumovirus* infection is a leading cause of respiratory tract infection in the first 2 years of life, with a spectrum of disease similar to that of RSV. The risk factors identified in this study may be considered for interventional studies to control infections by these viruses among young children from developing countries. Further investigations to better characterize hMPV infection and its clinical effect are needed.

Biography

Gamal El Sawaf is a Professor of Microbiology and Immunology Medical Research Institute, Alexandria University, Egypt. He is a nationally recognized leader in infectious diseases. He was graduated from the Faculty of Medicine, Alexandria University in 1979. He has obtained his PhD in 1993 and his Post Doctor training course in the Laboratory of Infectious Diseases (Cattedra Di Clinica Delle Malattie Infettive) University of Rome, Tor Vergata. He was appointed as the Head of Microbiology Department in 2008 and the Director of the Medical Technology Center in 2010 and finally, the Dean of MRI. His main fields of research activities are in the clinical aspects pathogenesis and therapy of HCV, HIV and HHV-8 infection and epidemiology and molecular characterization of hepatitis viruses in Egypt. He has acted as a Referee for a variety of national and international scientific journals and as a Referee of research projects of the Alexandria University and of the STDF projects. He is a Member of the American Society of Microbiology, The Egyptian Society of Microbiology and Egyptian Society of Immunologists. He is a Project Leader of several research programs on HCV, HHV and TB.

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