The role of viruses in the aetiology of IRA in Peruvian children

Del Valle J*, Cornejo A**, Del Valle L, Pumara L, Verne E, Petrozz V, Nazario R, Champan D.*


Objective

The role of respiratory viruses in community may have previously underestimated. The aim of this study was to study the incidence and clinical characteristics of acute respiratory infections (IRA) in children adding PCR to routine conventional laboratory tests.

Materials and Methods

Consecutive child patients diagnosed of Hospital Nacional Cayetano Heredia (Lima-Perú) from April to August were included. Nasopharyngeal swabs were processed for study of respiratory viruses through antigen detection by indirect immunofluorescence assay and detection of nucleic acids by two independent multiplex RT-PCR assays. All samples were processed by PCR to detect the presence of atypical pathogens (Mycoplasma pneumoniae, Chlamydia pneumoniae and Chlamydia trachomatis).

According to the aetiology, patients were categorized in 4 groups: group 1, only virus detected; group 2; only bacteria detected; group 3, viral and bacterial detected; and group 4, unknown aetiology.

Statistical methods

All data were entered into Access database. Statistical analyses were performed by using the SPSS software. Z-test and t-test were used with a significance level of 5%.

Results

Table 1. Clinical summaries of pediatric patients with respiratory disease.

Table 2. Comparison of the diagnostic by PCR vs. IFD.

Table 3. Prevalence of pathogens among patients. Pathogens agent identified in the diagnostic by PCR and IFD.

Table 4. Coinfection in pediatric patients with respiratory disease.

The accuracy using PCR is clear because a major difference in the number of pathogens found was the samples, a total of 181 pathogen's agent were identified in the diagnostic by PCR. RSV & Influenza were the most prevalent viruses among patients (14% and 11%, respectively), and they have a probability of occurrence (odds) of 16% and 12%, respectively.

The diagnosis by PCR have the advantage to identify additionally to the viruses other pathogens as the atypical bacteria. Bacteria with or without contacting pathogens were identified in 16 cases. Mycoplasma pneumonia (25%) and Chlamydia pneumoniae (22%) were the most prevalent bacteria pathogens among the patients with a positive diagnostic by PCR.

Conclusion

This study demonstrates that the population of children from the Peru, in spite of being in a time of epidemic of Influenza virus, has as pathogens more prevalent in the respiratory via to the atypical bacteria alone or in association with respiratory virus, RSV-A and Influenza A.

Mycoplasma pneumoniae (25%) and Chlamydia pneumoniae (22.5%) were the most prevalent bacteria pathogens among the patients with a positive diagnostic by PCR. These prevalence is higher in comparison to respiratory viruses (p<0.001) so the bacteria are an important group of atypical pathogens responsible of respiratory disease.

The clinical diagnosis of the patients was validated and conservative. This fact was conditioned to the world epidemic of flu (2009), and alone in some cases the diagnostic was reported as affections caused to the presence of respiratory virus.