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Short Communication

Detection of Human Coronavirus NL63 in a 28 Days Old Newborn in Iran

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Respiratory infections are one of the most frequent diseases with high morbidity and mortality in the first years of life. Human coronaviruses 229E, OC43, HKU1 and NL63 are known to cause common cold and upper respiratory tract infections worldwide. Recently it was shown that they can cause severe respiratory disease especially in neonates and infants (1). In this report we collected 322 respiratory tract swabs and washes from children less than two years old who were hospitalized with influenza like illnesses during January to March 2012 in Tehran and surrounded cities. All samples were subjected to RNA extraction with High Pure Viral Nucleic Acid Kit (Roche, Germany). At first Real time RT-PCR was performed for detection of Influenza A and B viruses. Then multiplex SYBR Green Real time RT-PCR was performed for detection of human parainfluenza viruses 1-4, Human coronaviruses 229E, OC43, HKU1 and NL63, rhinoviruses, human metapneumovirus, entroviruses and respiratory syncytial virus (RSV). In 322 samples, 26 (8%) influenza A/H3N2, 5 (1.5%) influenza B, 22 (6.8%) RSV, 2 (0.6%) parainfluenza virus 3, 2 (0.6%) parainfluenza virus 4 and 1 (0.3%) human coronavirus NL63 (2). Conventional RT-PCR was performed on the coronavirus NL63 positive sample and the product was sequenced. Although nucleotide analysis confirmed the presence of NL63 genome in the sample, since the length of product was less than 200 nts, it has not been submitted in GenBank.

This was the first detection of coronavirus NL63 in Iran. The patient was a 28 days old newborn girl who was hospitalized with respiratory distress, apnea, cough, stuffed nose, cyanosis and vomiting. She was admitted to NICU and her condition was poor. Her blood culture was negative and all other tests were at the normal range. She passed away because of the respiratory distress.

Here we investigated the viral etiology of respiratory tract infections in 322 children less than two years of age who were hospitalized from January to March 2012 in Tehran. Two principal pathogens were influenza A/H3N2 and RSV the same as many other studies (3). We detected coronavirus NL63 in a newborn with acute respiratory infection which shows that human coronaviruses can lead to the severe respiratory infections and hospitalization. According to the result of this study in addition to influenza virus and RSV, the evaluation of human coronavirus infections is recommended for children hospitalized with influenza like illnesses.

Conflict of interest

None

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