

Molecular detection of respiratory viruses in children hospitalized with acute bronchiolitis

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Introduction: Acute bronchiolitis is clinical syndrome caused by viral infection of lower respiratory tract in small children, characterized by cough, tachypnea, prolonged expiration with wheezing and hyperinflation of lungs.

Methods: From May 2017 to May 2019 nasopharyngeal and pharyngeal swabs from a total of 460 children with ARI of suspected viral etiology from Children's Hospital Zagreb were obtained and tested by multiplex-PCR for the presence of 15 respiratory viruses and clinical data were collected. This work was supported by Croatian Science Foundation under the project titled "New and neglected respiratory viruses in vulnerable groups of patients".

Results: From 460 tested patients, in 39 acute bronchiolitis was diagnosed (21 boy, 18 girls). All were younger than one year old (median 2,5 months). Viral etiology was proven in 37 cases (94,9 %). Most detected virus was respiratory syncytial virus (RSV), which was detected in 22 patients (56,4 %), second most detected was human rhinovirus (HRV), proved at 16 patients, 50% in monodetection. In one case parainfluenza 3 virus was proven as the only virus, while adenovirus, human metapneumovirus, coronaviruses and influenza were detected in combination with other viruses.

Peak of RSV bronchiolitis in 2018 was in February and in 2019 in January. Cases caused by rhinoviruses appeared all year round, not only during usual season of respiratory infections.

Conclusion: Results of this study show that, beside RSV, rhinoviruses are common cause of bronchiolitis, what is important data when thinking of viral diagnostic test, especially in case of bronchiolitis outside RSV season.