

Epidemiology of viral respiratory infection in adult patients – a 3 year study

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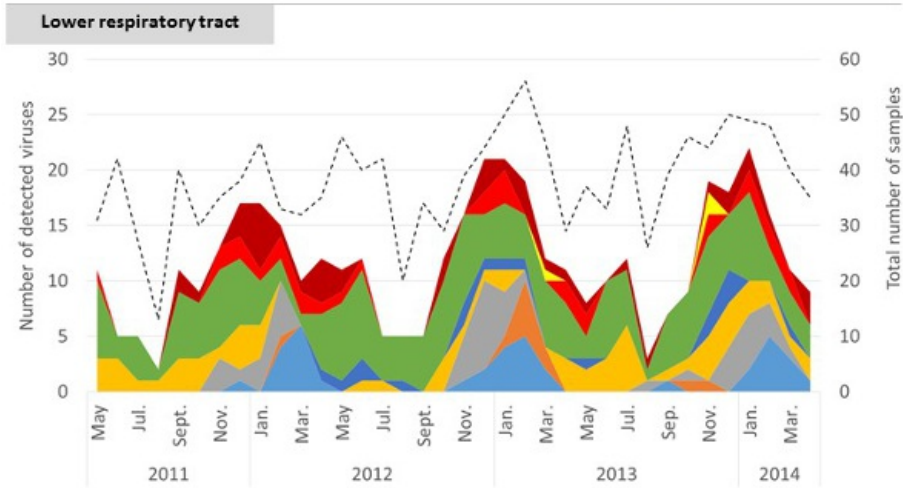
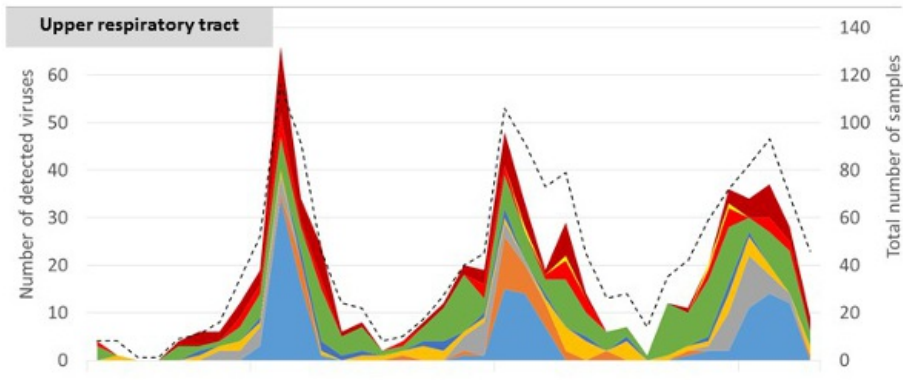
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Objective. Multiplex PCR tests are available since a few years and provide reliable data on respiratory viruses' detection. In this work, we describe data collected during 3 years in adults for virus detection by multiplex PCR.

Methods. All respiratory samples of adults patients (>20 years) tested for respiratory viruses on clinicians request from 01/05/2011 to 31/04/2014 were included. Samples issued from same patients and same respiratory area (upper or lower) in the same month were excluded. Test used for viruses detection were Respifinder (Pathofinder, Netherland), Anyplex II RV16 (Seegene, South-Korea) and Filmarray (Idaho Technologies, USA).

Results. During study period, 3143 samples issued from 2103 patients were included; 35% of samples were positive. 1546 and 1370 samples were collected in upper respiratory tract (URT) and lower respiratory tract (LRT), respectively. In URT, 599 samples were positive (39%) with 177 HRV (30%), 170 influenza (28%), 89 coronavirus (15%), 52 RSV (9%), 48 parainfluenza (8%), 38 metapneumovirus (6%), 21 adenovirus (4%) and 4 bocavirus (<1%). In LRT, 421 samples were positive (31%) with 172 human-rhinovirus (HRV) (41%), 63 parainfluenza (15%), 49 influenza (12%), 44 RSV (10%), 43 coronavirus (10%), 30 metapneumovirus (7%), 17 adenovirus (4%) and 3 bocavirus (<1%). Virus seasonality is depicted in joined figure. 901, 787, 404 and 877 samples were collected in the lung graft unit, intensive care unit (ICU), pneumology and other medicine units, respectively. In URT, influenza viruses were more frequently isolated in medicine units than other units (43% versus 23%, p<0.0001). HRV were predominant in all other units (33 to 41%). In LRT, HRV were predominant in all units (36 to 48%). Influenza viruses were more frequently isolated in ICU than in other units (23% versus 8%, p=0.0001). Respiratory viruses exhibited different distributions according to age (p<0.0001). Main isolated viruses were HRV for 20 to 70 years old patients (37%), and influenza for >70 years old patients (38%). Influenza was also highly prevalent in 20-40 years old patients (24%) and less prevalent in 40-70 years old (15%). In 20-40 years old patients influenza was less represented in LRT than URT (12% versus 31%, p=0.01) unlike to >70 years old patients (31% and 40% in LRT and URT respectively, p=0.7).

Conclusion. This study, using reliable multiplex PCR commercial tests, has been conducted in a large hospitalized population during three years and provides a picture of respiratory viruses' distribution over seasons, patients' age, main clinical units and respiratory tract. HRV and parainfluenza were predominant in LRT and were more prevalent in LRT than URT, suggesting an underestimated role in pneumonia. Further prospective works, including clinical observations and bacterial investigations, are needed to confirm these findings, to evaluate clinical impact and to assess usefulness of multiplex PCRs in diagnosis of respiratory infections.



- Influenza A
- Influenza B
- RSV
- Para-influenza
- Adenovirus
- Human Rhinovirus
- Metapneumovirus
- Bocavirus
- Coronavirus
- - - Total number of samples