Surveillance of Influenza  
Summary of the Season 2016-2017

Isabelle Thomas¹, Cyril Barbezange¹, Nathalie Bossuyt², Steven Van Gucht³ and the Belgian Network of Sentinel Hospitals*

Background

In Belgium, the influenza surveillance is performed by the National Influenza Centre and the Unit of Epidemiology of Infectious diseases. Since 2011, the surveillance has been extended to Severe Acute Respiratory Infection (SARI) cases as a tool to monitor severe diseases caused by influenza to complement surveillance of outpatient monitoring of influenza-like illness (ILI). The main objectives were to measure incidence, risk factors, clinical spectrum and outcomes of SARI caused by influenza virus and other respiratory pathogens and to monitor indicators of severity, season after season.

Six hospitals participated to the surveillance. The SARI case definition is: an acute respiratory illness with onset within the last seven days and fever of ≥38°C and cough or dyspnea, and requiring hospitalization (24 h or more). The surveillance is carried out during the epidemic period of seasonal influenza. Clinical data and respiratory samples are collected from patients meeting to the case definition. Respiratory samples are analyzed by real time PCR for influenza (typing and subtyping) and other respiratory viruses. The hemagglutinin gene of a subset of influenza positive samples is also sequenced.

Methods

Pediatric and adult units collected clinical data and took nasopharyngeal swabs from patients who corresponded to the case definition. For each patient, information on gender, age, clinical symptoms, influenza vaccination status, antiviral treatment and risk factors was gathered.

Patients

From week 1-2017 to week 17-2017, 1422 respiratory samples from the sentinel network of hospitals were tested among which 563 (39.5%) were positive for influenza virus. Of these, 556 (98.7%) were influenza A and 7 (0.9%) were influenza B. Among the analysed influenza viruses, 526 (93.4%) were A/H3N2, two (0.4%) was A(H1)N1/2015, 2 (0.4%) were influenza B/Victoria and 5 (0.9%) were influenza B/Yamagata (Fig. 1). The percentage of positivity for influenza virus increased in the age group 2-4 years old and reached 60% in the elderly (Fig 2).

Overall, 72% of the SARI patients were positive for at least one respiratory virus (including influenza virus and other viruses). Besides influenza virus, the most prevalent viruses were RSVB (8.8%), human rhinovirus/enterovirus (7.7%), hMPV (7.23%). The percentage of co-infection was overall 10,9 %, but reached 29% in children <5 years old.

Conclusions

The 2016-2017 influenza epidemic was characterized by an early start, short duration and moderate intensity and severity. The predominant viruses were A(H3N2). As observed in other countries, a new subclade of A(H3N2) has emerged: the 3C.2a1 which remains however antigenically close to the vaccine strain A/Hong Kong/4801/2014. Sentinel surveillance of severe influenza cases has been successfully introduced in Belgium since six consecutive seasons.

Influenza virus was the main virus involved in SARI patients, but in 51% of the influenza virus-negative samples one or more other respiratory viruses were also detected.

Acknowledgements

This work was financed by the federal government (DG1). Special thanks to J.Weyckmans, R. Van Eycken, I. Fdillate and A. Hamoudi for excellent technical assistance.

*Sentinel Network of Hospital *, Koen Magerman, Jessa Ziekenhuis (Hasselt), Marc bourgeois, CHU UCL Namur (Godinne), Michèle Gérard, CHU Saint-Pierre (Bruxelles), Marijke Reynders, AZ Sint-Jan (Brugge), Patrick Lacor, Universitair Ziekenhuis Brussel (Brussel), Bénédicte Lissoir Grand Hôpital de Charleroi (Charleroi)

References

Sentinel surveillance of severe influenza cases has been successfully introduced in Belgium since six consecutive seasons.

Influenza virus was the main virus involved in SARI patients, but in 51% of the influenza virus-negative samples one or more other respiratory viruses were also detected.

Acknowledgements

This work was financed by the federal government (DG1). Special thanks to J.Weyckmans, R. Van Eycken, I. Fdillate and A. Hamoudi for excellent technical assistance.