Characteristics of hospitalizations associated with circulating seasonal influenza strains: Epidemiological analysis from the “Global Influenza Hospital Surveillance Network” (GIHSN)

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Started in 2011, the GIHSN is a network of country sites, each one coordinating a pool of hospitals. During the 2012-2013 influenza season, the GIHSN network was composed of 21 hospitals in the world. The GIHSN has for main objective to evaluate the burden of severe influenza disease; defined as hospitalization related to community acquired influenza; and quantify the distribution of different influenza strains among severe cases and different population groups.

Methods

A multi-centre prospective epidemiological surveillance study in:
- Spain (5 hospitals),
- France (5 hospitals),
- Turkey (7 hospitals),
- Moscow (1 hospital) and St. Petersburg (3 hospitals) regions in the Russian Federation; was conducted.

The flu season started globally at the end of December with a peak from week 5 to week 8 and ending week 22, 2013.

Results

Of the 9,215 patients screened, 5,034 patients were included in the analysis. Of these, 1,545 (31%) were positive for influenza. Influenza A (H1N1)pdm09 was dominant (n=615), followed with influenza B/Yamagata (n=436) and influenza A (H3N2) (n=262).

Hospitalized patients of all ages presenting influenza like-illness (ILI) within 7 days between the onset of symptoms and admission were swabbed. Positives for influenza were real time reverse transcription polymerase chain reaction (RT-PCR) positive for influenza A (H3N2), or A (H1N1)pdm09, or B. All data management and analysis was performed with STATA version 12.

Conclusions

Influenza H1N1pdm09 was highly circulating this season in the younger in Eastern Europe and Central Asia, and Influenza B was present mostly in the elderly in northern and south west Europe. There was peak at a later appearance for Influenza B compared to Influenza H1N1pdm09. More investigation is needed in order to further assess the risks of being hospitalized due to influenza. However the data represented from this network provides robust comparisons between positives and negatives for influenza, and epidemiological data giving a global overview of the influenza season 2012-2013.

Influenza B/Yamagata was most common in Spain, St. Petersburg and France in the older than 65, and caused a mean length of stay at the hospital of 7.2 days [95% CI: 6.6 – 7.8].

We did not observe differences on ICU admissions (P=0.107) in patients positive for influenza compared to those negative for influenza. Death at hospital was more frequent (P=0.004) in patients negative for influenza compared to those positive for influenza.