Influenza epidemic of 2014-2015 season was more severe than the previous season and started later than that of the previous year. These findings were also observed in France, in Belgium and in the USA [2,3].

The Correlation between influenza and monthly average temperature:

Epidemiological surveillance of influenza on Tunisia territory has shown that the epidemic peak was recorded during the coldest weeks (week 4), in fact there is an inverse trend of monthly average temperature and influenza incidence, this remarkable correlation shows that the rate of influenza incidence increased as the temperatures gradually decline. The hypothesis that the virus is favored by low temperatures can be explained by the quality of nasopharyngeal specimens. Moreover, the distribution of influenza viruses in the 2014-2015 season is not closed to that of Switzerland and France, with a predominance of influenza A (H1N1)pdm09 (5%).

Virological surveillance

Virological surveillance is ensured by the National Influenza Centre (Charles Nicolle Hospital), by analyzing samples taken from sentinel sites. The laboratory use RT-PCR technique to subtype strains of influenz virus. In the 2014-2015 season: 1034 samples were collected and pooled with a positivity rate of 27.7%. The virus A (H3N2), A (H1N1) and type B circulated during the flu season, with a dominance of virus type A. The seasonal distribution of 3 types of virus was: Virus A (H3N2) (14%), A(H1N1)pdm09 (40.2%), B virus (45.8%). In the 2013-2014 season the seasonal distribution was: Virus A (H1N1) (45%), A(H3N2) (40%) and B virus (15%). The seasonal distribution of 3 types of viruses in that season was: Virus A (H1N1)pdm09 (50.1%), Virus B (38.2%).

Influenza is an acute viral infection, the number of annual deaths attributable to influenza in the world varies from 1 to 29 deaths according to the global surveillance system. In France the number is 511 deaths (2014-2015) [5]. One explanation of this is the demographic age of French population (The proportion of seniors aged 65 and over in 2014 is 16.5%)

We notice that, the sampling positivity rate (27.7%) is low compared to that of Switzerland (52%) and France (55%), this can be explained by the quality of nasopharyngeal specimens. Moreover, the distribution of influenza viruses for the 2014-2015 season is not closed to that of Switzerland and France, with a predominance of influenza A (H1N1)pdm09 [4].

Vaccination Status

The studies estimated that ideal vaccine should have an efficiency of 90%. During the 2014-2015 season, the vaccine against the flu is not as effective as other years and it varies from country to country: in UK vaccine effectiveness in preventing laboratory confirmed influenza was estimated to be 3% overall [6]. This compares to approximately 50% vaccine effectiveness that has typically been seen in the UK over recent years. In the 2014-2015 season, vaccine effectiveness against influenza A(H3N2) viruses was 18% and against influenza B viruses was 45% [7]. These low estimates may reflect the high proportion of antigenically characterised A(H3N2) virus variants that are drifted away from the vaccine strain. Another factor influencing influenza vaccine effectiveness is the age and the health of the person being vaccinated. In general, the flu vaccine works best in young, healthy people and is less effective in people 65 years of age and older [8].

In S Tunisia, the sentinel influenza surveillance system assesses the efficacy of the vaccine. As well, for the season 2014-2015 the Directorate of Basic Health care (DSIB) has provided 270,000 doses of influenza vaccine. Flu vaccine uptake rate for the people aged 65 years and over is only 33%, in UK the rate is 73%. In spite of the implementation of a sentinel influenza surveillance since 1999, Sentinel centres were in continuous operation only in some districts, irregular reporting of ILI & SARI cases by the majority of districts with an average of 58% of data completeness. The absence of an information management system, the dispersion of data between the National Program of Influenza and the National Influenza Centre (NIC) and the lack of multi-sectoral collaboration, prompted us to launch a strengthening project to overcome these challenges and create an appropriate surveillance system, efficient and consistent with international standards.

RECOMMENDATIONS

- Establish a management system of quality according to the standard in order to ensure users a data fully compliant with coherent work methods, validated and searchable. This system is oriented towards continuous improvement and prevention of non-conformities.
- Create a national electronic system for collection of information (IMS), which allows the analysis and redistribution on real-time of epidemiological data from the activity of the sentinel sites. This IT system should be flexible, and ready to adapt to changes in the epidemiological situation.
- Strengthen capacity of the epidemiologists in the surveillance and responding to outbreaks.
- Review epidemiological threshold of flu, it will perhaps be interesting to work on different epidemiic thresholds to determine the most appropriate.
- Define the national alert threshold of mortality imputable to flu to assess the severity of the epidemic in the population.
- Strengthen the capacity of biological analysis by adding other virology laboratories in the system.

CONCLUSION

The influenza epidemics 2014-2015 was particularly long, marked by the co-circulation of three influenza viruses, the impact of the epidemic in terms of ILI consultations and hospitalizations was more severe than 2013-2014 season. Viruses know no borders, control and fight against the influenza requires a global vision of the dynamics of the disease in another country, as well as an Mediterranean in the context of better contain any unusual events.

REFERENCES

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