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A provincial Acute Febrile Illness Surveillance Network (GAFINet), South Korea

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Objective

The objectives are to introduce a provincial level surveillance system, which has been initiated in response to the MERS-CoV outbreak of South Korea, and describe findings from systematic investigation of individual admissions attributed to acute febrile illness for the first year.

Introduction

In May 2015, the MERS-CoV outbreaks in South Korea was sparkled from a hospital of Gyeonggi-do province (1). In response to this outbreak, the provincial government and infectious disease control center (GIDCC) initiated an emergency department (ED) based Gyeonggi-do provincial acute febrile illness (AFI) surveillance network (GAFINet) to monitor for a subsequent outbreak of emerging or imported infectious diseases since September 2016. Gyeonggi-do province is located in the North-West of South Korea, surrounds the capital city Seoul, and borders North Korea (Figure 1). Considering the geographical coverage, GAFINet Initiative involves ten hospitals, consisted of four university-affiliated hospitals and six provincial medical centers in Gyeonggi-do province. These hospitals participated in this network voluntarily, and most staffs including five infectious diseases specialists had direct or indirect experiences in dealing with MERS-CoV patients.

Methods

Periodic surveillance for finding AFI patients in ED of participating hospitals was performed prospectively (Figure 2). AFI was defined as 1) fever: body temperature ≥38 °C at admission, or 2) chief complaint of febrile or chilling sensation. Demography of patients and chief complaints were investigated in this first step (CRF #1). Cases were classified into six categories based on their clinical diagnoses: 1) respiratory AFI [AFRI], 2) gastroenteric AFI [AFGI], 3) exanthematic AFI [AFEI], 4) other infectious AFI, 5) non-infectious AFI, and 6) unclassified AFI. Participating infectious diseases specialists regularly reviewed and reformed this classification. Because the aim of GAFINet is primarily monitoring community- or aboard-acquired infection, nosocomial AFI cases or the patients transferred from another hospital were excluded. When a patient had a history of international travel or he/she were undiagnosed in three days after ED admission, more comprehensive information (CRF#2 & #3) including history and final diagnosis were obtained. For a baseline data, age- and sex-stratified ED visits were also gathered weekly. The proportion of AFI cases per 1000 visits was determined for one week period and analyzed by febrile diseases categories with age-stratification. Characteristics of cases with international travel histories or undiagnosed cases were also described separately.

Results

Between 30 September and 3 December 2016, about 6,000 of patients visited ED of ten hospitals a week, and 10% of them were AFI cases. The proportion of AFRI was the largest, 33.64 to 71.96 per 1000 visits/week, and the second-largest was the other infectious AFI. The proportion of AFRI showed the highest rate at the age 1-9 years, while those of AFGI and AFEI were the highest at the age under 19 year and 70-79 years, respectively. 31 cases with international travel history were reported, and the majority of them traveled China and South East Asian counties. Some of them were suspected cases of Zika viral infection, MERS-CoV, or viral hemorrhagic fever. 3 cases undiagnosed until discharge were also reported.

Conclusions

Gyeonggi-do province was the most affected region in the 2015 MERS-CoV outbreak, 67 of 185 cases were residents of this province. GAFINet Initiative is a meaningful step for rapid detection of emerging or overseas imported infectious diseases at the provincial level. To validate data and co-analysis with pre-existing surveillance data, we need a more long-term of continuous operation of GAFINet. As a next step, we are preparing the additional lab-based surveillance system to detect new or re-emerging pathogens.

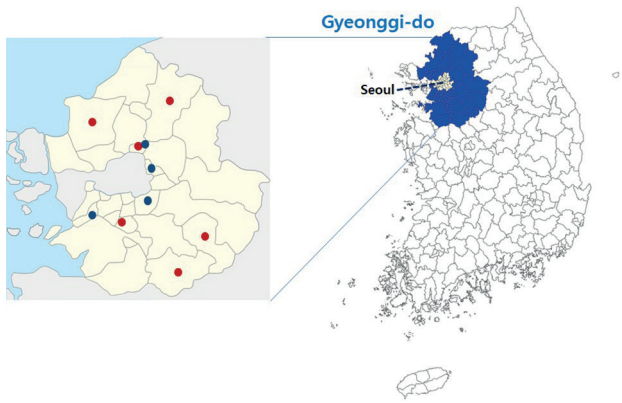

Figure 1. Locations of sentinel hospitals participating in GAFINet (Blue dots: University affiliated hospitals; Red dots: Provincial medical centers)

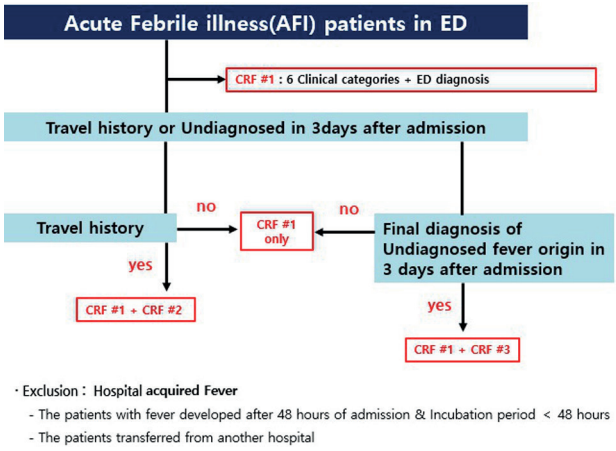

Figure 2. Flow diagram showing patient flow and collection of clinical data in GAFINet

Keywords

acute febrile illness; South Korea; emergency department based surveillance; communicable disease surveillance; syndomic surveillance

Acknowledgments

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References

1. Park H et al. Epidemiological investigation of MERS-CoV spread in a single hospital in South Korea, May to June 2015. Euro Surveill. 2015;20(25):1-6.

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