

Some observations on the evolution and new improvement of Chinese guidelines for diagnosis and treatment of influenza

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Influenza (flu) is a kind of acute respiratory tract infectious disease caused by flu viruses. It is one of the major public health problems currently faced by the human population. Seasonal flu generally causes sudden onset of acute respiratory disorder accompanied by fever. Although most cases are self-limiting, hospitalization is required for patients with severe infection or complications. The most distinct epidemiological characteristics of flu are sudden outbreak, rapid and varying levels of spread, seasonality, high incidence but low mortality rate. During the past 300 years, there had been at least 6 major global flu outbreaks. Among these outbreaks, the 1918 Spanish pandemic flu (armor H1N1) infected half of the world's population and killed 20-40 million people. In 1957, the Asian flu (armor H1N1), which originated from Guizhou in China, caused 2 million deaths worldwide. In 1968, 1 million deaths resulted from a flu pandemic which began in Hong Kong, China (armor H3N2). Another major flu pandemic in 1977 (also known as Russia flu, H1N1) possibly originated from the Dandong area in northeastern China (1). A new type of flu (armor H1N1) originated from Mexico and the US in 2009 and caused 12,799 deaths worldwide by the end of January, 2010 (2). In addition, since human infection with the highly pathogenic avian virus H5N1 was first identified in Hong Kong in 1997, World Health Organization (WHO) have confirmed 566 human avian virus H5N1 cases by 10 October, 2011, of which 322 have died (3). Based on the above information, it is clear that flu has been a severe and continuous threat not only for China but also for the whole world. Although vaccination is an efficient way to prevent flu infection, and the early use of anti-viral drugs can alleviate flu symptoms, shorten the duration of illness and decrease the occurrence of complications, effective prevention of flu is still a vitally important medical issue due to the high mutation rate of the genome of flu viruses.

In view of the dangers posed by flu toward public health, some developed countries represented by the US, England, Australia, Japan and WHO issued guidelines between 2007 to 2009, providing a lot of useful information on the diagnosis, treatment and medical prevention of flu, as well as the usage of anti-viral drugs and management of public facilities upon flu outbreak (4-8). These guidelines provide beneficial information for the global prevention and control of flu, and each guideline has its own focus, such as time effectiveness. WHO issued a guideline called "medical treatment guide on new armor flu and other flu viruses in 2009" promptly after the outbreak of the new armor flu, which provided clinicians with directions on the usage of anti-viral drugs for treatment and prevention. The guideline issued by the US was comprehensive, detailed and highly pertinent, and covered the diagnosis of flu, treatment, prevention and disease control.

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The guidelines issued by WHO, England and Japan focused on providing clinicians with instructions for the use of anti-flu virus medicine for treatment and prevention (4,5,7). The guideline issued by the Australian monitoring network of infectious diseases mainly focused on disease control, and provided directions for the Australian public health institutions, hostel organizations and their staff to prevent widespread outbreak in hostel facilities during a flu epidemic (8).

According to the 2011 guideline for flu prevention and control in China (9), it is obvious that practitioners and researchers in the area of respiratory medicine in China have learned much from the advanced experience and research results of foreign countries. They have also realized that the guidelines from foreign countries may not be entirely suitable for China. This is because China, being a nation with the largest population in the world, needs a diagnostic guideline which both complies with global standards and also considers the practical situation in China. For example, in terms of public safeguard against flu, the expense on the storage of neuraminidase inhibitor accounts for only 0.11% of the total medical expenditure in developed countries, but can be as high as 12.9% in the developing nations (10). Up till now, China is still the biggest developing nation in the world. Considering the financial support and drug manufacturing capacity in China, it may not be practical for China to rely solely on oseltamivir to fight against human avian flu and any other flu pandemic which may occur in the future. In addition, the overseas guidelines mainly focus on the situations in developed countries but there are major differences between China and those developed countries with regard to politics, economy, hygiene and education conditions. With the exception of a few developed areas, many developing regions in the western China fall way behind the requirements set out in the overseas guidelines. Therefore, the guidelines proposed by developed countries may not be entirely applicable. Finally, China has its own unique experience and characteristics in flu treatment, such as the rescue of seriously ill flu patients. The extraordinary high cure rate and treatment with traditional Chinese medicine in China during the SARS outbreak was globally impressive and China also has successful experience in the emergency rescue of multiple organ dysfunction syndromes (MODS) caused by the highly pathogenic avian flu virus. However, these medical advancements have not been reflected in the guidelines of foreign countries or WHO.

An overview of the 2011 edition of the Chinese flu guideline shows that the guideline not only adopted the standard format of foreign guidelines and made reference to them, but also summarized China's experience in the prevention and treatment of respiratory tract infections after SARS, and further proposed and promoted positive local experience. According to the writer's observation, the guideline has the following attractive features. Firstly, it is very comprehensive and its standards are already

comparable to international guidelines. In contrast to previous Chinese guidelines which only focused on specific subtypes of flu (such as the four separate guidelines in respect of the seasonal flu, the highly pathogenic avian flu and the new avian flu), the present guideline is applicable to all subtypes of flu. This change makes the guideline more widely applicable. With subsequent improvement, it will certainly serve as a valuable reference in dealing with any unforeseen flu attacks in the future. This is of particular practical significance for a global hot spot region for flu study like China. Secondly, this guideline is highly enriched with Chinese characteristics. The previous Chinese guidelines mainly referred to foreign literature and exclusively reported foreign flu treatment strategies. The present edition continued to build on this basis but however supplemented with Chinese medicinal treatment and latest Chinese clinical experience. For example, in the diagnostic aspect, it has extensively referenced to the research experience in the northern China. This is an encouraging step forward even though the resources and experience of China are still very limited when compared with that in overseas guidelines. In the guideline, flu treatment with Chinese medicine is no longer a simple empirical summary, but supported by evidence-based medicine, e.g. the clinical efficacy of two Chinese medicine formulas recommended by the guideline have been reported in international journals in the field of evidence-based medicine (11,12). These accomplishments show that Chinese medicine formulas are effective in alleviating symptoms, such as the fever, caused by flu virus infection. It is also a new attempt for Chinese alternative medicine to enter mainstream medical practice. Meanwhile, considering the recent increase in drug resistance of M2 ion channel inhibitor and the appearance of Duffy resistance, these alternative Chinese medicine formulas are likely to be considered as drug candidates for further investigation in respiratory medicine.

In summary, the present edition of the Chinese flu guideline reflects the recent research progress in flu diagnosis and treatment both in China and in other countries. Moreover, the clinical and research experience in China could effectively improve the diagnostic capabilities of Chinese clinicians so that prompt treatment to patients could be provided. Given the complex situations in China, which possesses characteristics of both developed and developing countries, the Chinese guideline can not only provide other developing countries with an alternative choice of information apart from the guidelines issued by developed countries, but also enable developed countries to draw inference and insights from it. It is notable that the guideline has much room for improvement since its conclusions are drawn mainly from foreign results and the evidential support from China's own medical data is still lacking. With increasing results from worldwide flu research and accumulating research and clinical experience in China, I believe guidelines and instructions on flu will be continually renewed and become

widely understood and recognized by health professionals working on flu.

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