

Effectively utilizing Traditional Chinese Medicine in unexpected event

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Abstract Traditional Chinese medicine has some special advantages for dealing with the unexpected events on epidemic disease. On the basis of analyzing the problems for traditional Chinese medicine at present, the paper puts forth the measures on raising the reserve of Chinese herbs, carrying into classification management, establishing an available system and rapid reaction mechanism, and strengthening R&D of traditional Chinese medicine.

Key Words Traditional Chinese medicine; Unexpected Event; Epidemic Disease; Systems Analysis

1 Introduction

The unexpected pandemic of Serious Acute Respiratory Syndrome (SARS) in 2003 resulted in a serious threat to the health and life of people. The current prophylaxis and treatment of SARS gives us a great alarm. It was evidenced that traditional Chinese medicine (TCM) played an important role in the treatment of SARS in China. However, challenging problems emerged in the response of medical professionals to such an unexpected event as SARS. For example, what could TCM do in that disaster? How should a contingency reserve of traditional Chinese medicinal materials (TCMMs) be set up? It called for urgent centralized macro control of the supply, production and stockpile of the natural materials of limited source and for establishment of an effective managerial system and quick response system under socialistic market economy.

2 TCM is a special and effective tool, playing an important role in unexpected

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events on epidemic disease

2.1 TCM & CD has a long history in the prevention and treatment of acute infectious diseases

As early as about 475-221B.C., the treatment of infectious diseases was described in Plain Questions from The Yellow Emperor's Canon of Internal Medicine, the earliest Chinese medical classic. In the past thousands of years, TCM accumulated rich experiences in treating infectious diseases, which were recorded in a great number of medical books. Up to now, TCM physicians have been enjoying these experiences. The low death rate of SARS in China in 2003 was attributed to the early intervention of TCM to a degree. Professor Gu Xiaohong from Beijing TCM University concluded that TCM played a role at least in the following aspects in the treatment of SARS: (1) shortening febrile period; (2) reducing complications; (3) alleviating symptoms; (4) enhancing immunity; (5) obviating or curtailing the use of glucocorticoids, thereby avoiding or reducing the side effects; and (6) even skipping the critical phase of lung failure and directly entering convalescent stage. The excellent results of TCM in combating SARS make us reexamine the remarkable efficacy and the special position of TCM in coping with an epidemic or other unexpected events.

2.2 The advantage of TCM in unexpected events on epidemic disease

Great disasters, epidemics or pandemics of infectious diseases, and serious food poisoning, radioactive leakage, chemical and bacterial attacks launched by terrorists may increase in the 21st century. The pathogenic factors of acute infectious diseases are not known at first, but they may have similar symptoms. The treatment of acute infectious diseases by modern medicine is based on identifying the pathogen; but the development of new effective drug and vaccine is time-consuming. In contrast, the first consideration of TCM in treatment of diseases is the patients and the characteristic of their symptoms. The remedy is decided based on the symptoms not the causes. The similarity of symptoms in spite of unknown pathogen on the outbreak of an epidemic highlights the advantage of TCM in the treatment of acute infectious diseases. TCM should play a role as a special weapon in coping with an epidemic or

other unexpected events.

3 Problems arising from supply of TCMMs under the complete control of market forces

3.1 Unexpected epidemic of infectious disease caused the short supply, market disorder and skyrocketing price of urgently needed TCMMs

With the development of SARS in China in 2003, panic began to spread in people. One of things the citizen could do was to buy Chinese medicinal herbs that might be efficacious for preventing the disease. With the promulgation of the first preventive recipe against SARS in the middle of April, customers flocked to pharmacies in Guangzhou, Beijing, Shanghai and some other cities, even they had to queue up for a long time. But the prices of some most commonly used drugs shot up relentlessly. For example, the price of basket fern increased from 1RMB yuan/kg to 180RMB yuan/kg and that of honeysuckle flower went up from 20RMB yuan/kg to 500RMB yuan/kg. Some pharmacists hoarded up the drugs for speculation. For a time, some drugs used for preventing SARS were out of supply. The disorder of medicinal material market compelled pharmaceutical factories to buy up raw materials at a price higher than selling price or to stop production. People complained about the shortage of drugs in pharmacies. Being in charge of the overall supply of TCMMs for prevention and treatment of SARS in whole China, Medicinal Material Group Company felt uneasy about the fact that there was stockpile of Chinese patent medicines but no stockpile of TCMMs in China.

3.2 Alarming decrease in natural source of TCMMs

The traditional Chinese drugs are in increasingly short supply. Of the 534 species of medicinal materials collected in Chinese Pharmacopoeia 2000 edition, 74 belong to endangered species of animals or plants. For example, rhinoceros' horn, antelopes' horn, bezoar and musk are four key drugs prescribed for emergency treatment, such as in Decoction of Rhinoceros Horn and Rehmanniae, Pianzihuang, Purple Snow, Treasured Bolus, Yushu Dan, etc. Jin Shiyuan, a senior expert of TCM, said that the four key drugs have different effects and none of them is dispensable in the recipe for

emergency treatment. After China joined the World Wildlife Preserve Convention in 1973, the use of rhinoceros horn is prohibited and buffalo horn is substituted for the former. But rhinoceros horn has very good effect on high fever in infectious diseases, especially on shortness of breath and difficulty in breathing during high fever. According to incomplete statistics, there are tons of rhinoceros horns kept in the storehouses of TCMM companies in provinces and municipalities. If they are not laid up, supervised and regulated in a unified manner by the government, this resource will be wasted. Additionally, it will make it possible for lawbreakers to regrade wildlife. It seems very important for the government to store up the four key drugs at this time.

3.3 TCMMs have a long growth cycle and must be stored up for emergency

Coming from wild growth or being cultivated the raw materials of traditional Chinese drugs have a long growth cycle. If there is no repertory, in case of the epidemic of infectious disease, raw material shortage will happen. If they are not stockpiled in adequate quantity in advance, shortage of them will occur in case of an epidemic of infectious disease. And if the government cannot control the supply of them, speculators will board the medicinal materials and manipulate the market. When an epidemic of infectious disease or unexpected disaster breaks out, the government cannot supply inexpensive and efficacious traditional Chinese drugs to the people, to whom such drugs are generally accepted. It is by no means desirable to go back to the planned economy, but the market economy cannot cover all aspects of needs. The government should select the indispensable and scarce traditional Chinese drugs needed in emergency treatment from 600 TCMMs and arrange the cultivation and stock of them for the urgent need in any unexpected event.

4 The production and management of essential TCMMs should be administered by an enterprise authorized by the government and not be wholly regulated by the market.

The animal drugs such as the four key drugs should be centralizedly managed,

handled and stored by the government. Formerly, all these affairs were committed to the Medicinal Material Company of China in Beijing. There were large storehouses for that purpose and the company marketed rhinoceros horns and antelope horns. In the recent years, however, the government has lifted the control over the production allocation, and marketing of all TCMMs including scarce animal drugs, to the extent that they are completely marketized. Although relevant ministries and commissions appropriate funds to support the development of traditional Chinese drugs, there is no unified administrative department to coordinate the work and the government controls no variety of TCMMs. Of the scarce TCMMs, some species are forbidden and the others are transacted as private business, leading to waste of the source and restriction of the development of TCM. To make matters worse, in the event of an infectious epidemic, the source supply of the drugs will be depleted. We propose, accordingly, that the government should set up an organ to administer the production and business operations of TCMMs and establish a TCMM reserve fund.

5 The government should intensify TCMM reserve and conduct differentiated management

Some animal drugs that are believed by TCM experts as extremely important for emergency treatment, and the use of which is restricted, such as antelope horn and natural musk, should be listed in special category reserve drugs. These drugs preserved in safety in drug storehouses all over China should be collected and preserved by the government. A green channel for procuring such drugs should be open when a serious incident occurs and the drugs should be used according to the emergency start-up procedure established beforehand.

Some animal and plant drugs that are believed by TCM experts as extraordinarily important for emergency treatment, and the supply source of which is decreasing, such as pangolin scale, gecko and hippocampus should be listed in the first category reserve drugs. The government may authorize an enterprise to produce, store, manage and supply such emergency medicinal materials when an infectious epidemic, disaster or accident occurs.

Some animal and plant drugs that are believed by TCM experts as highly important for emergency treatment, and the supply source of which is decreasing, such as *Atractylodes rhizome*, basket fern, *Astragalus root* and *rhubarb*, should be listed in the second category reserve drugs. The government of provinces and municipalities may authorize experienced enterprises to produce, store, manage and provide such emergency medicinal materials when an infectious epidemic, disaster or accident occurs.

The TCMMs that are not included in the special, first and second categories should be regulated by the market and traded freely.

Different from the administration in the past planned economy, the present day administration of the reserve drugs should be handled at a higher efficiency and on the basis of first-in first-out. The renewal of the reserve and the operation of the authorized organs should be handled by specific procedure and detailed executive scheme. It's proposed that different start-up procedures be set up for different categories of TCMM reserve, which should be put to use for events in different degrees of seriousness. TCMMs for urgent use should be produced and provided at fixed points, and sent to the places in urgent need within 12 hours through an emergency allocating and transportation system, the system must also include a network of retail dealers in traditional Chinese drugs and TCMM managers, through which the government can collect urgent drugs in serious crisis.

6 The selection of the items of traditional Chinese drugs for reserve is a systematic engineering

The selection of the items of traditional Chinese drugs should be based on various considerations, which involve not only disasters and infectious epidemics but also microbial and chemical attacks of terrorists, and nuclear leakage like that in Chernobyl nuclear power plant. The etiologic factor and pathogenesis of an epidemic disease should be studied. It has been predicted that the final competitors for the Earth are mankind and pathogenic microorganisms and the struggle will be endless. The Medicinal Material Company of China with 40 years' experience in traditional Chinese

drug reserve called on experts from multiple disciplines to scrutinize and work out the items to be reserved. For example, which Chinese medicinal herbs are to be used in epidemic febrile diseases? It is not quite easy to make it clear. Multi-discipline experts should do extensive study before they can decide it. Not only the diagnosis but also the symptoms and the course of diseases should be considered in the selection of the drugs. For example, SARS is a serious infectious disease of the lungs, a febrile disease. Drugs for relieving fever; detoxifying, activating blood circulation to dissipate blood stasis must be used according to the changes in the course of the disease.

7 Solving the contradiction between resource protection and reasonable use of rare animal and plant TCMMs

Emphasis should be given to the preservation on one hand, and the breeding and cultivation on the other hand of endangered species of animal and plant TCMMs. Besides, opportunities should be provided for TCM experts to communicate with International Green Protective Organization, explaining to them the related theory, practice, efficacy of TCM and the reasonable use of natural resources. Academician Wang Yongyan discussed the problem with the experts of International Green Protective Organization and World Wildlife Conservation Association, who lent their ear eventually. Therefore, the problem concerning the resource of TCMMs should be publicized and relevant international cooperation should be strengthened. Taiwan's such efforts are laudable.

8 Establishing rapid response system and improving the ability to cope with unexpected events

In the aftermath of September 11 event, United States of America, United Kingdom, Japan and Russia have established effective systems to cope with unexpected events, including strengthened preparedness and prevention. The role of TCM should be considered in the establishment of Chinese emergency system. We propose that the government designate some traditional Chinese medical hospitals as emergency hospitals in the country; establish infectious disease monitoring and early

warning system and a traditional Chinese medical contingent well trained in emergency handling; preparing traditional Chinese medical emergency plan for the possible outbreak of infectious diseases and the diseases caused by disasters or unforeseen events; reserving kinds of Chinese patent medicines and TCMMs used in emergency; and assigning some manufacturers of traditional Chinese drugs used in emergency. In conclusion, the objective is to make the special contingent of TCM be organized promptly and combat in the main battlefield of infectious diseases as an effective strength in dealing with unexpected events.

9 Strengthening the R & D of Chinese drugs used in emergency

Many countries have invested a multitude of manpower and material resources in searching for and developing new drugs against infectious diseases. Since the September 11 event, the National Institute of Allergy and Infectious Diseases (NIAID) of USA, one of the most important R & D institutes in the world, has initiated more than 30 R & D projects and worked out all round strategic plan and concrete research schedules on viral and bacterial diseases such as smallpox, Ebola virus, anthrax bacillus and Francisella tularensis. The ministry of Health, Welfare and Labor, and Defense Agency and other institutes of Japan dispatched special personnel abroad to investigate and sample biochemical agents and new viruses to make clear the types and characteristics of related chemicals and biological agents. This work in China must be organized and strengthened as soon as possible. The investment in the R & D of emergent traditional Chinese drugs should be increased and effective emergency action plan of Chinese characteristics should be formulated.

References

1. Han pei, Huyunquan. Thought on Appropriate Responses of Traditional Chinese Medicine and Chinese Drugs (TCM & CD) to Unexpected Event. China Soft Science, 2003, 151(7): 155~157
2. Han pei, Huyunquan. The Current Situation of Development, External Environment and Countermeasures of Traditional Chinese Medicine on

- Internationalization. Proceedings of 2002 in International Conference on Management Science & Engineering. Moscow, Russia. Harbin Institute of Technology Press 1433~1437.
3. Zhang Yi, Tang Ren. The Outline of National Drug Contingency System for the Unexpected Events of Public Health. *China Pharmacy*, 2003, 14 (10): 580~581
 4. Zhu Xiao~ zhuo, Tian Kan. Application of the emergency principle in drug supervision and administration. *Central South Pharmacy*, 2004, 2 (2): 123~125
 5. Tong Zhan~ qi, Lin Ming~ xiong, Wang Fa~ we, Rethinking of Usage of Traditional Chinese Medicine in Preventing SARS. *Medicine and Philosophy*, 2004, 25(2): 52~53
 6. She Jing, Development. Retrospect and outlook of Traditional Chinese Medicine in Century 20th. *World Science and Technology/ Modernization of Traditional Chinese Medicine*, 2000, 2 (2): 4~6
 7. Chen Shilin and Guo Baolin. Sustainable Utilization of Chinese Material Medicine Resources. *World Science and Technology/ Modernization of Traditional Chinese Medicine*, 2000, 6(1): 1~8
 8. Zhang Enhe, Huang Gaobao, Jing Rui. Studies on Protection and Utilization of Pharmaceutical Plants' Diversity in North~ western China. *Journal of Gansu Sciences*, 1997, 9(1): 42~ 45
 9. Xiao Peigen, Liu Yong. Several strategic consideration for the modernization of Chinese materia medica. *Acta Pharmaceutica Sinica*, 2003, 38(7): 485~ 486
 8. Xiao Peigen, Chen Shi lin. Establishment of the National Macro~ Management System on Chinese Medicinal Resource——Base of the Modernization for Chinese Medicine. *China Journal of Chinese Materia Medica*, 2003, 28(1): 4~ 6
 9. Xiao Peigen, Wang Yongyan, Chen Hongshan. Some Research Clues on Chinese Herbal Medicine for SARS Prevention and Treatment. *China Journal of Chinese Materia Medica*, 2003, 28(6): 481~ 483
 10. Xiao Peigen. Some Hot Spots in the Study of Chinese Drugs in the 21st Century. *CJIM* 2004, 10(2), 82~ 85
 11. Xiao Peigen and Liu Changxiao. A Re-understanding on the Safety Matters of

Chinese Herbal Medicine. CJIM 2004, 10(4), 242~ 245

12. Peng Shengquan. Superiority and Characteristics of Traditional Chinese Medicine in Treating Viral Communicable Diseases. Journal of Guangzhou University of Traditional Chinese Medicine. 2004, 21(5): 336~ 339
13. Song Naiguang, Zhao Yansong, Targ Baining. Study on Treating Acute Infectious Diseases with TCM. Chinese Medicine Journal, 19(7): 389~ 391