China Medical Team: Medical rescue for “4.25” Nepal earthquake

Xi Lin a, Ke-Jia Liu b, Yong-Gui Zhang b, Yang Dan c, Dian-Guo Xing b, Li Chen d, Ding-Yuan Du a, *  

a Chongqing Institute of Accident & Emergency Medicine, Chongqing Emergency Medical Center, Chongqing 400014, China  
b Chongqing Health and Family Planning Commission, Chongqing 401147, China  
c Chongqing Health Center for Women and Children, Chongqing 400001, China  
d First Affiliated Hospital of Chongqing Medical University, Chongqing 400016, China

ABSTRACT

In recent years, global natural disasters have been frequent and resulted in great casualties and property losses. Since Wenchuan earthquake in Sichuan Province on May 12, 2008, the disaster emergency rescue system of China has obtained considerable development in various aspects including team construction, task scheduling, personnel training, facilities and equipments, logistics, etc. It plays a major role in each domestic emergency rescue mission. However, the team has never undertaken medical rescue for overseas earthquake victims.

At Beijing time 14:11 (Nepal time: 11:56:25) on April 25, 2015, an earthquake that measured 8.1 on the Richter scale attacked Nepal. Chinese government firstly organized a medical team, named China Medical Team, and sent it to the attacked region in Nepal to implement medical rescue. The medical team completed the rescue mission successfully and creatively based on their experiences.

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In recent years, natural disasters around the world have been frequent, causing heavy casualty and property losses. Since Wenchuan Earthquake in Sichuan Province on May 12, 2008, the disaster emergency rescue system of China has obtained considerable development in various aspects including team construction, task scheduling, personnel training, facilities and equipments, logistics, etc. It plays a major role in each domestic emergency rescue mission. However, the team has never undertaken medical rescue for overseas earthquake victims.

At Beijing time 14:11 (Nepal time: 11:56:25) on April 25, 2015, an earthquake that measured 8.1 on the Richter scale happened in Nepal. The government of People’s Republic of China responded rapidly and organized the China Medical Team on the basis of Sichuan branch and Chongqing branch of National Emergency Medical Rescue Team, hereinafter referred to as “China Medical Team (Sichuan branch), China Medical Team (Chongqing branch)” respectively. The team was sent to Nepal in two batches and executed the international medical rescue mission in earthquake. The two branches were part of “National Emergency Medical Rescue Teams of China”, which were established and equipped by the government of People’s Republic of China in succession after the “5.12” Wenchuan earthquake in 2008. The two teams had conducted systematical digging and experienced the medical rescue for domestic great earthquakes in recent years. This was the first cross-border implementation of medical rescue for earthquake victims and the teams needed to carry out the medical rescue work creatively, combing actual condition of Nepal and experiences from domestic disaster rescue. With the superior’s requirement of “being victorious with zero casualty”, they successfully completed the international humanitarian medical rescue mission in the earthquake disaster.

Mission phases

Time of stay: from April 27 to May 8, 2015

According to the notice of National Health and Family Planning Commission of China, at Nepal time 6:35 on the morning of April 27, 2015, 60 people in China Medical Team (Sichuan branch) carrying the facilities, equipments, drugs, medical supplies, and field tent hospital arrived at Kathmandu Airport by a special plane. With the support and assistance of China Embassy in Nepal and Nepal Army, they reached the rescue site Dhulikhel Municipality at 15:00, and immediately constructed “field tent hospital” and the camping sites of the medical team. Since the medical team arrived, it carried out emergency medical treatment for earthquake victims around the clock (Fig. 1). They went back to China on May 9, 2015.
Time of stay: from May 6 to May 22, 2015

At 11:45 on May 4, 2015, Chongqing Health and Family Planning Commission received a notice from China National Health and Family Planning Commission. The second batch of China Medical Team organized by National Emergency Medical Rescue Team (Chongqing branch) was sent to Nepal to replace China Medical Team (Sichuan branch) and carry out emergency medical rescue of earthquake and epidemic prevention respectively on May 5 (contingent) and May 8 (the main contingent) in Nepal. The government of Chongqing Municipality held a coordination meeting on the morning of May 5, and demanded the relevant departments to make concerted efforts in supporting National Emergency Medical Rescue Team to accomplish medical rescue and epidemic prevention in Nepal on behalf of the government of China.

China Medical Team (Chongqing branch) had a total of 56 persons, including 47 males and 9 females. All the team members came from 10 municipal medical and health units, Municipal Health and Family Planning Commission, and the news media in Chongqing. Among them, there were 39 medical professionals (32 medical and nursing staff, 7 technicians for health and epidemic prevention). Twenty had the titles of vice chief physician or chief physician, and 19 were attending doctors and nurses. They were from 25 clinical disciplines, including trauma surgery, orthopedic surgery, neurosurgery, general surgery, cardiothoracic surgery, emergency surgery, gynecology and obstetrics, anesthesia, psychiatry, ophthalmology, otolaryngology, pediatrics, intensive care medicine, respiratory medicine, gastroenterology, cardiology, infectious diseases, dermatology, pharmacy, radiology, ultrasound, laboratory medicine, public health and so on.

A 10-person contingent of China Medical Team (Chongqing branch), which was composed of experts in health emergency management, medical treatment, hygiene and disease control, medical logistics support, etc., arrived at the camping site of China Medical Team in Dhulikhel Municipality of Nepal on May 6, 2015 (Fig. 2A), met with China Medical Team (Sichuan branch), and handed over materials and facilities as well as the patients on May 7 and 8, 2015.

At 14 o’clock on May 8 (local time), the subsequent 46 team members of the China Medical Team (Chongqing branch) landed in the capital of Nepal, Katmandu (Fig. 2B). Around 18 o’clock in the evening, the motorcade of the medical team arrived in the camping site of China Medical Team in Dhulikhel Municipality, located about 40 km in the east of Kathmandu, Nepal. After arrival, the main contingent and the contingent quickly met and gathered, conducted the handover with China Medical Team (Sichuan branch) (Fig. 2C), and checked the hospitalized patients one by one. On the morning of May 9, 2015, all the members of China Medical Team (Sichuan branch) went back to China. China Medical Team (Chongqing branch) completed the medical rescue mission until the morning of May 22, 2015, and handed over the platform, facilities, equipments, medicines and living materials of the “tent hospital” to the Nepalese government. And they returned to China on the afternoon of May 23, 2015.

China Medical Team (Chongqing branch) carried out medical rescue work after “4.25” earthquake in Nepal

Actively cooperate to prepare emergency relief supplies

After checking the medical and living supplies, facilities and equipments handed over by the China Medical Team (Sichuan), considering the needs of the front line medical rescue work, the medical team carried other materials they needed, including the mobile color Doppler ultrasound, fully automatic blood gas analyzer, ECG monitor, electrically powered and controlled ventilator, drugs, detection reagents and related materials that basically covered all the needs in different clinical departments, motor disinfection equipments, drugs for environment and drinking water disinfection, physical and chemical and microbiological quick inspection equipments of water quality, etc.

Deploy carefully and carry on the work in an intense but orderly manner

On the very evening upon arrival, the first plenary session was convened (Fig. 3). Dr. Liu Kejian, the team leader, conveyed the instructions from the National Health and Family Planning Commission and Chongqing municipal government, emphasizing that the overseas medical rescue work for earthquake in Nepal was an important task assigned by Chinese government. Glorious mission comes with great responsibility. To successfully complete all the
tasks, all team members should unite and collaborate in carrying out the assignment. The assignment was as follow: (a) appointing Dr. Liu Kejian as the team leader, Dr. Zhang Yonggui, Du Dingyuan and Dan Yang as the deputy team leaders of China Medical Team (Chongqing branch), and clarifying the responsibilities and divisions of the staff; (b) divided into six groups, namely, comprehensive coordination group, medical group, health and epidemic prevention group, public relation group, equipment maintenance and security group, and life guarantee group, with personnel arrangement, responsibilities and divisions of each group in details; (c) specifying all the rules and regulations of the whole team, including organizational discipline, work and rest system, regular meeting system and other rules, requiring all the members to execute the rescue work strictly according to the paramilitary standard. From May 9 to May 21, 2015, China Medical Team (Chongqing branch) carried out all the work orderly and efficiently.

Coordinate multilaterally to create a stable working environment

In order to adapt to the environment and engage in work as soon as possible, China Medical Team made timely reports to the China’s embassy in Nepal, and conducted intensive contact and communication with the leaders of local communities, the garrison troops, Dhulikhel government, Dhulikhel Municipality Hospital, and local police in two days. They checked the security of the camping site of China Medical Team, guaranteed the fuel supply, network, power supply, toilet building, and volunteer organizations, took other security measures, and finally created a more relaxed and safer working and living environment for the rescue team.

Accomplishments in the rescue

Workload of China Medical Team (Chongqing branch) (Fig. 4)

Until 5:30 p.m., May 21, 2015, the number of patients admitted in the outpatient service (including first aid, psychological counseling, and physical examination) reached 737. In total, there were 128 hospitalized patients with age range of 1–85 years. The team accomplished 587 laboratory tests, 646 prescriptions, 68 X-ray inspections, 274 times of B-type ultrasound examinations and 148 major or minor operations concerning different disciplines. Efforts were focused on prevention and treatment of post-traumatic complications, functional reconstruction after limb trauma, infection prevention, new earthquake victims and local diseases.

The disinfection area was added up to 197,000 m², 16 batches of collected water samples from 52 points, 124 testing indicators, 18 batches of disinfectant for drinking water were collected. The dust heap of the toilet 78 times, 842 persons were conducted disease surveillance, and 70 persons received health education.

The wounded in local places traveled long distance for treatment

Hearing of the first-rate service provided by China Medical Team, many Nepalese patients came to receive treatment out of admiration. On the night of May 9, 2015, we treated a 46 years old male patient whose index finger, middle finger and ring finger of the right hand were cut by the sliding steel tile in the post-disaster housing reconstruction. Without any hesitation, he spent 6 h in walking 26 km for medical treatment in China Medical Team. The examination showed that the flexor tendon of middle finger was ruptured and immediate tendon repair surgery was necessary. After effective communication with the patient and his brothers, four experts built an operating table on a camp bed less than 40 cm high and knelted on the ground until they completed the operation. It is the first major operation by China Medical Team (Chongqing branch) since the arrival in Nepal, obtaining satisfactory results. The patient’s tendons were fully matched, and he was able to extend and flex his middle finger which had been unable to flex (Fig. 4D).

Meet fierce aftershock and mass casualty treatment

At 12:50 local time, May 12, 2015, a 7.5-magnitude strong aftershock happened in Nepal (Fig. 5A). After that, the medical team quickly made preparations for patient treatment (Fig. 5B). About 200 m away from the medical team’s camping site, the earthquake caused two local houses collapsed, six people wounded. The wounded were all sent to the medical team and obtained timely and effective emergency disposal. Among them, five patients with soft tissues injury and mild illness went home for observation after emergency treatment and one patient with bone trauma and
abdominal trauma was hospitalized for treatment. This aftershock resulted not only in certain potential safety hazard harbored in the buildings of Dhulikhel Hospital, but also in the sharp increase of the newly wounded personnel. Through the coordination of the local military, on the very night, 11 patients with trauma were transferred from Dhulikhel Hospital to China Medical Team for emergency treatment. Considering the increasing number of the wounded people caused by the earthquake, the medical team timely adjusted the deployment, increased the medical capacity of the inpatient department, carefully sorted the rescue medical supplies for transferring the wounded in batches, and finally made favorable emergency preparation (Fig. 5C).

Mission summary and recommendations for international medical rescue after earthquake

Undertaking the international mission

Provided the particularity of multinational task, all the members should strictly abide by the disciplines since they themselves represent their state. Even in choices between their professions and tasks, they should prioritize the work arrangement and complete the work collaboratively.

Specialized treatment combined with multi-disciplinary consultation as a priority

In daily work, the doctors were available in different departments, including surgery, internal medicine, pediatrics, gynecology and obstetrics, psychiatry, ophthalmology, and gerontology. All professionals showed high capability and competence in the diagnosis and treatment of single injury or disease pertaining to their professions. Moreover, in cases of multiple trauma or complicated diseases, multidisciplinary consultation was necessary to ensure careful treatment.3

Highly efficient organization, orderly management and timely treatment

Thanks to the unified arrangement by the team leaders, duties and responsibilities of the whole medical team were clearly defined and efficient medical practice was performed. Through the tripartite coordination mechanism of garrison medical officials, Dhulikhel Hospital and our team, the optimal two-way transferring system of field operations was established. On the one hand, for high risk patients or patients requiring a major surgery, our doctors firstly discussed and made a treatment scheme, then field operations was established. On the one hand, for high risk patients or patients requiring a major surgery, our doctors firstly discussed and made a treatment scheme, then communicated with the local military doctors, meanwhile the patients were given basic life support, and finally transferred into a hospital with better condition after successful contact with Dhulikhel Hospital. On the other hand, to alleviate the treatment pressure of the batch wounded, the relatively stable patients who had received the preliminary processing from Dhulikhel Hospital would be transferred to China Medical Team for further treatment.

Quick response to unexpected events

Though the team members came from different hospitals, they showed quick response to emergency and effective cooperation in urgent situations. On May 12, when 7.5-magnitude strong aftershocks took place, the team members kept calm even in the hour of peril. To tackle emergency, they formulated a response plan which enabled them to handle the new earthquake victims nearby swiftly and effectively, and carried on orderly sorting, admission examination, and treatment overnight to the batch of wounded (12 cases) transferred from Dhulikhel Hospital in emergency, even in abrupt failure of lighting and communication. One severely injured woman was sent back to Dhulikhel Hospital for safety after panel discussion.

Conclusion

China Medical Team (Chongqing branch) composed of doctors from all medical won the trust and satisfaction from Nepal government and Nepalese people. This rescue mission was in fact an effective and remarkable one, winning the trust and friendship of the Nepalese government and the people.

Because of the different levels of economy, different languages, religions and culture and different secondary disasters afterwards, emergency medical rescue in the earthquake shows the different characteristics, which need further analysis.4 In large natural disasters, China’s capability of medical rescue has been greatly improved to make quick response and do efficient work. However, these equipments for medical rescue are mostly heavy and inconvenient to move in the field. How to develop novel, portable, medium-sized field medical platform and mobile emergency care equipments, how to deliver the personnel and materials in the disasters of different scales, how to make an optimal combination of professionals, how to respond to overseas medical rescue? All the issues still need further research.5

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