

Prof. Helong Zhang: a skillful doctor loyal to his profession

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Introduction

The ancient Greek aphorism “*know thyself*” engraved on the forecourt of the Temple of Apollo epitomizes the human desire for the exploration into the unknown. In fact, never has mankind dragged their feet in understanding themselves, as in the achievements scientists have made all these years in the studies of disease and pathology.

Ere the 2017 WCLC journey, AME Editors were sent across China to conduct in-depth interviews with an army of distinguished experts in the field of lung cancer. Together we learned how these soldiers fought for the nation that has the largest number of patients, and how they dedicated their lives to inventing the most-advanced weapons and probing into the enemy camp. From the past, they reflect and learn from mistakes; at present, they work hard and make changes; for the future, they make plans and improvements.

May this issue take you to the innermost world of these Chinese scholars, where you can delve into their wealth of knowledge and be inspired.

Expert's introduction

Helong Zhang (*Figure 1*) is a professor, Chief physician and the Director of Division of Oncology in Tangdu Hospital. Also, he is the Graduate Chair of The Fourth Military University, PhD Supervisor and Postdoctoral Collaborating Advisor. He once went to the University of Tokushima in Japan and the Mayo Clinic in the USA as a visiting scholar. He has also been to Massachusetts General Hospital (MGH), Stanford University and University of California, Los Angeles (UCLA) for visiting and learning. He has obtained more than 10 national and provincial funds.

His research focuses are on the mechanism and treatment of brain metastasis in lung cancer and especially on the Multimodality Therapy/Individualized Treatment of Malignant Tumor. Over 100 papers were published in the domestic and foreign journals. Now he is the member of American Society of Clinical Oncology (ASCO), International Association for the Study of Lung Cancer (IASLC), China Anti-Cancer Association: Lung cancer,



Figure 1 Prof. Helong Zhang.

Translational Medicine, and Geriatrics Committees, Deputy Chairman of Shaanxi Provincial Cancer Association, Honorary Chairman of Shaanxi Province Anti-Cancer Association, Chairman of Shaanxi Province Preventive Medicine Association and the Director of Chinese Society of Clinical Oncology (CSCO). He is also one of the Editorial Board members at *Tumor*, *Chinese Journal of Lung Cancer*, *Medical Journal of Chinese people's Liberation Army* and *Journal of Modern Oncology*.

On the day of the interview, the waiting line in Prof. Zhang's clinic went on and on. Every patient was waiting for consultation. Upon our arrival, Prof. Zhang served us immediately before continuing his discussions with patients. During the whole interview, Prof. Zhang was so friendly that he kept wearing a smile on his face. What impressed us most is that he not only has professional knowledge, but also gives his patients comfort, which is truly precious in today's society.

Not only is Prof. Zhang a doctor, but a soldier. Every single action of his showed the typical spirit of a soldier, the spirit of devotion and self-discipline, which can be easily noticed when you learn how much he cares about his patients and how much he demands himself.

Prof. Zhang He-Long was born in Hunghua City, Hebei Province in 1964. After graduating from The Fourth Military Medical University with great marks in 1986,

Prof. Zhang decided to work at the university. He has worked on lung cancer clinical research for a long time, and his research has been a leading figure in our country. When talking about why he chose oncology as his field of expertise, he said as an oncologist he feels needed and this is what keeps him improving.

Not just skillful

In 2001, Prof. Zhang went to Japan to conduct research on osseous and brain metastases in lung cancer. After he came back to China next year, the research was still carried on. Among all cancers, the death rate and incidence of these two cancers are the highest. What's more, in all kinds of metastases, the highest incidence rate goes to osseous metastases, and the second highest one is brain metastases. The high death rate and incidence are two main reasons why he chose to research them. Focusing on these two subjects at the beginning, Prof. Zhang gradually put more effort in osseous metastasis research, which gains a lot of support and funding from our national and provincial governments.

Years of study and work experience makes Prof. Zhang a leading figure in the lung cancer field. He said that the main cause of death in cancerous patients is metastases. Therefore, how to prevent metastases becomes an important topic. And this is why the treatment will focus on how to slow down osseous metastases. However, there are not enough case reports or medicine for metastases clinically. At present, bisphosphonates and Denosumab (Xgeva) are the two major medicines used in China. Denosumab (Xgeva) is widely used in foreign countries but has not yet entered the market of China.

Prof. Zhang hopes that there will be more specific drugs for treating osseous metastases. Since 2005, he has participated in more than 80 clinical trials, 21 of which are still at the experimental phase. Prof. Zhang said the new medicine developments are mostly focused on lung cancer. There is only one medicine research focused on osseous metastasis and it is used to reduce the pain.

It is a pity that there is not enough medicine to treat osseous metastasis; thus, it is hard to make progress in the field of osseous metastasis research. The mechanism of osseous metastasis is a hot research topic in the clinical aspect. A way to make progress in osseous metastasis treatment is to do more research on mechanism, and to further design more targeted medicine.

To have a better environment for clinical research,

the Integrated Cancer Centre was established at The Fourth Military Medical University. As the Director of the Integrated Cancer Centre, Prof. Zhang united 13 divisions to work on the interdisciplinary diagnosis and treatment of tumor, known as MDT discussion. The discussion is usually held in the study room on 14th floor. It is easier to have a discussion on some complicated cases because all of the medical case reports are open access electronically. By having a discussion and then coming up with a solution together can definitely improve medical plans.

A caring doctor

“Doctor is not like any other occupation. It needs not only skills but also morality.” As an old saying goes, *“A skillful doctor must be sincere to his patient.”* It means to be a good doctor, you need not only skills but sincerity.

During the interview, Prof. Zhang kept stressing the importance of humanistic solicitude. In current medical research, many tumors cannot be fully cured. That is why how to reduce the pain, especially psychological problem has become an important issue. Prof. Zhang emphasized that psychological problems usually come with physical pain and might end up being a serious mental illness. However, young doctors in China do not pay much attention to these issues.

“I keep stressing the importance of patience. Many young doctors nowadays are impatient. They are not used to listening to their patients when they talk. We all understand doctors are busy, but listening to patients is a necessity,” said Prof. Zhang. If there is no communication, no matter how concise the diagnosis is, patients' problems cannot be really solved.

In addition to precise diagnosis, Prof. Zhang also pays much attention to the details. For example, he notices that patients need to stand when they initiate admission process; thus, he takes some chairs from his office for patients to sit when they are waiting.

“It has nothing to do with the doctor's skills, but these small details can make a difference. When you talk to your patient but keep your head down and write health records, they won't feel comfortable,” said Prof. Zhang.

A considerate doctor

With over 30 years of clinical experience, Prof. Zhang has seen too many patients. Even though there were a lot of impressive cases, the most special one was an advanced cancer patient who extended his life for 7 years longer by

taking afatinib. In fact, this patient did not know what kind of disease he had but lived a good life after treatment. One day the hospital wanted to give him an X-ray examination to check his newest condition. His daughter declined the offer because she was afraid it would affect her dad's mood if he knew his conditions.

“Every year we have many patients, so we always need to be ready for new challenges,” Prof. Zhang told us, *“Some patients couldn't even leave the bed when they first came to the hospital. However, after some treatments, they are not much different from normal people.”* Another case is that a patient suffering from brain metastasis extended his life 5 to 6 years after the treatment.

Usually if someone is diagnosed with having brain metastasis, he or she can only live a few more months. Thus, the above cases really give us a sense of fulfillment. Prof. Zhang could remember many of the patients he treated, as the word “doctor” represents not only an occupation but a responsibility.

There was a patient who had small-cell lung cancer and was critically ill, but Prof. Zhang did not give up on him and chose to give him chemotherapy. Fortunately, the patient extended his life about half a year longer in the end. Prof. Zhang had communicated with the patient's family before he did any treatment because the patient could either survive or pass away during the chemotherapy.

Communicating with patients' family is an absolute thing since not every family can afford the fee. All of the treatments now are just palliative care because tumors cannot fully be cured. Thus, understanding the economic status of the patients prior to adopting any particular approach is of utmost importance for doctors. Patients from economically challenged families can choose the medicine covered by health insurance. Although the effect might not be the best, the medicine is affordable for them. On the other hand, patients from wealthier family can choose the medicine out of the health insurance scheme, which has better therapeutic effects.

“These principles cannot be found in any guideline, we doctors should take a family's economic status into consideration, and try our best to make them have a happier lives.”

A warm-hearted doctor

Visiting the University of Tokushima and Mayo Clinic as a visiting scholar and learning in MGH, Stanford University and UCLA had great influence on Prof. Zhang's career.

During his study in the States, he had visited many hospitals and well-known medical schools to learn the differences between hospitals in China and foreign countries. The difference can be seen not only in patients but medical professionals. Compared to China, foreign hospitals are extremely careful with the management of their patients. Over 20 doctors and nurses are assigned to take care of any single bed, whereas in China there are less than 2 staff members. The workload of doctors and nurses in China is much heavier compared to overseas, but the doctors' missions are the same—manage your patients, and do the research.

“The most important thing I learned in Mayo Clinic is the patient-oriented concept, and they really carry it out,” said Prof. Zhang. The experience in Mayo Clinic is the cause that Prof. Zhang cares so much about patients' feeling. He hopes through medical personnel's efforts, they can minimize the pain that patients feel and make them feel like home whenever they come to the hospital. He also shared some details he observed in the Mayo Clinic, *“In Mayo Clinic, the best and the most convenient parking lot is for patients instead of doctors. The elevators are always in good conditions for patients' convenience.”* What impressed him most is that every doctor in the Mayo Clinic wears a suit in June and July, which is the hottest time during summer. The reason doctors do not wear a white physician gown is to make people feel less oppressed. *“When you enter Mayo Clinic, you won't see it as a hospital. It is more like a hotel. All the problems or concerns patients might have are well considered beforehand. With regard to humanistic solicitude towards patients, there is still much room for improvement in the hospitals of China.”*

“I always stress that my perspectives might not be entirely right, but I think doctors are part of a service industry. Patients' satisfaction is one important assessment.” There is a small sign outside the Mayo Clinic oncology office that says “Miracles happen every day”. He believes it is important to let patients know there is hope to survive instead of making them desperate. *“Information can be easily obtained from the Internet, so patients try to look for answers online and start to panic. However, not all information on the Internet is accurate. Some illnesses can be cured. It's doctor's responsibility to give patients the right information and guidance.”* Prof. Zhang also mentioned that young doctors should not just care about their skills but patients' feelings.

After the interview, instead of taking rest, Prof. Zhang kept working. He uses action to show us what a good doctor is like!

Conversation with Prof. Helong Zhang

AME: You were one of the co-authors of “Clinical Diagnosis and Expert Consensus on Malignant Tumor Metastasis and Bone Related Diseases”. Do you think this consensus provides any guidance towards the diagnosis of malignant tumors and related diseases?

Prof. Zhang: Clinically speaking, metastasis of lung cancer is very common; however, every hospital has different treatments and standards. Thus, the purpose of this consensus is for doctors from different hospitals to use the same treatment towards patients who suffer from bone metastasis.

AME: You have done systematic research on this topic and have built the animal model. What triggered you to do this research? Did you encounter any difficulties during the research? What was the clinical meaning of the research result? What is your future research plan?

Prof. Zhang: We want to do some research to improve the symptom of brain metastasis. However, it is a hard topic and we haven't built a satisfactory model since we started the research. Due to difficulties and non-satisfactory model, we focused less on this topic from then. In recent years, targeted therapy is applied to this field and it does show some effectiveness on brain metastasis, so it has gradually become a hot topic; however, it is hard to carry out our research so now we spend less time on it and focus more on bone metastasis.

AME: Radiotherapy is seen as the foundation of lung cancer treatment. However, there is no denying that it has faced its bottleneck. What do you think the future direction of lung cancer treatment might be?

Prof. Zhang: There are three stages for cancer treatment. The first phase is chemotherapy. Second is targeted therapy and the last one is immunotherapy. I am sure chemotherapy will be less and less important in the future. Instead, the use of targeted medicine is going to increase, and immunotherapy will definitely be applied in China. We all look forward to the improvement on immunotherapy in the future though it is still new.

AME: What are the bottlenecks in lung cancer research? What can be improved in the future?

Prof. Zhang: The breakthrough point in lung cancer research in the future is to find more suspect genes,

which is also called oncogene driver. When suspect genes are found, it is easier to develop new medicine. In the beginning, we found EGFR and soon ALK was found too. Later on, more and more genes have been found. Targeted cancer therapies are defined as medicine that interfere with specific molecules involved in lung cancer cell growth and survival. In other words, if we attempted to increase the drug sensitivity of the targeting medicine along with the portion of immunotherapy medicine and chemotherapeutic agents, more lung cancer patients could be cured and this revolutionary treatment can save lives.

AME: You have worked at the Respiratory Department for quite a while. Do you think the experience you had there can help you with tumors-related research?

Prof. Zhang: I was studying at Respiratory Department before graduating as Ph. D. The research I did was about lung cancer when I was a master student and a Ph. D. Even now, the research I am doing is still lung cancer so they are all related.

The reason I studied lung cancer is related to my experience in Respiratory Division. Compared to other disease, a number of patients who suffer from lung cancers are the most in our hospital. We belong to the Second Affiliated Hospital of the Fourth Military Medical University, and there is a division of work between our hospital and The First Affiliated Hospital Cardiac Surgery in our hospital is now combined with The First Military Medical University. In the First Military Medical University, they don't have Division of Cardiothoracic Surgery, which means most lung cancer and esophageal cancer patients will be in our hospital if they need a surgery.

AME: China's clinical experience and skills can be comparable to other developed countries. However, there is still a distance for our basic research to catch up with those developed countries. As a scientist and a doctor, what do you think we can do to improve both clinical work and research, and further develop mutual benefit?

Prof. Zhang: I have been to many hospitals in the USA for several times, like Mayo Clinic, Harvard University, UCLA and Stanford University. Compared to China, they have better equipment and management. For example, they have at least 20 medical professionals for one hospital bed. In China, we couldn't even have 2 medical professionals for one bed. However, Chinese doctors and American

doctors carry the same duty for managing patients and doing research. Moreover, Chinese doctors need to apply for funding to do research. Now we focus more on clinical research and design projects based on patients' conditions. We hope patients' problem can be solved by our project.

AME: *There is much research on lung disease in our hospital. Could you tell us the advantage of our hospital over others in the lung cancer field?*

Prof. Zhang: The advantage of our hospital is that we have many Divisions, not only Division of Oncology but Division of Thoracic Surgery. We put much emphasis on lung cancer. At the same time, doctors from Respiratory Department also do research on lung cancer, but they focus more on the treatment at early stage. Unlike our department, we focus more on the mechanism of metastasis because we have more patients from stage 3 or 4. And doctors in Division of Thoracic Surgery are more surgery-oriented as they have to perform thousands of lung cancer surgeries every year.

We have about 4,000 to 5,000 patients. As doctors in First Military Medical University do not perform the surgery, about 3,000 surgeries are performed in our hospital every year. Moreover, we have MDT discussion regularly as a mean of improving outcomes in lung cancer. Some patients at the Department of Thoracic Surgery would be strongly recommended to consult experienced doctors at the Division of Oncology. If the patient has the potential to receive surgery, we would cooperate with Department of Thoracic Surgery. Our multidisciplinary team always ensures that effective information is shared among Divisions. In addition, our treatment is quite systematic and treatment is regular. Patients who cannot receive an appropriate surgery in other hospitals might be able to have one in ours.

AME: *You have been to the University of Tokushima in Japan, Mayo Clinic, MGH, Stanford University and UCLA in the USA as a visiting scholar. What are the ideological differences between Western and Asian doctors when they treat lung cancer patients?*

Prof. Zhang: There is not much difference when it comes to treatment, even the guidelines we are using in our hospital is NCCN, which is from the United States. In China, CSCO also made a guideline for lung cancer. The major difference between China and the States is the policy, especially the medical insurance policy. Doctors in Mayo

Clinic do not care about the fee of the treatment because their health insurance covers everything. We have health insurance in China but patients still need to pay some money; thus, doctors in China need to be careful about the medicine they prescribe for patients. Also, compared to the States, our medicine is not as diverse as theirs. Taking immunotherapy medicine as an example, it has been in the States for years but we still haven't had it in China.

Another difference is in terms of prevention. In foreign countries, they usually find more early stage patients, but in China most cancer patients are already in stages 3 or 4 when they are diagnosed. I would say their overall management is better than us. However, based on 5-year survival rate after treatment, our survival rate is actually higher. The gene mutation rate among Asians is higher because of racial difference. Taking EGFR as an example, Asians mutation rate is about 30–40% but American's is only 14%.

Our health system is not as good as America, and we even have unbalanced regional development issue, except big city like Shanghai and Beijing. Small cities don't have well-developed medical system.

AME: *Which teacher has influenced you a lot during your study and career? And is there anything special between you and your teacher that you still remember? What influenced you a lot and even became an important turning point in your life?*

Prof. Zhang: There are two professors who influenced me a lot. One is Prof. Zhang Ning Zi from Cardiology and the other is Prof. Tang Min Zhang, who was my homeroom teacher when I was at graduate school. They are in their 80s and 90s but still work hard and are very responsible. I have been the Director of Oncology since 1990. In the beginning, I orientate myself as a Director and then a doctor but now it is the opposite. I like the way of thinking in the USA. They don't care about the title they earn but the skills and attitude towards patients. When patients come to us, they don't care if you are a Director or not. The only thing they care is whether you can solve their problems.

AME: *In your department, sometimes even if you work really hard, you still cannot save patients' lives in the end. How do you deal with this kind of thing? And what changes in mindset have you experienced throughout the past 30 years?*

Prof. Zhang: I understand more about the meaning of

lives. When I first started the job, some young patients passed away after a lot of treatments, which was pretty sad. I was haunted by the feeling for quite a while.

Many people think it is hard for oncologists to have a sense of achievement because many patients die during the treatment. Some patients' families don't even want to see the same oncologist again because the pain of their loss would recur to them. However, there are many people who need our help, and this is what exactly doctors should do. Doctors should try their best to reduce patients' pain. Those who suffer from tumors usually have some mental issues, so showing care for patients' feelings is needed for sure.

AME: *As the director of the Oncology Department, you have to not only deal with some complicated cases but manage the department, and even need to find cooperation opportunities with other hospitals. How do you manage these things? Could you share some of your clinical and management experiences with us?*

Prof. Zhang: I educate my medical professional one thing—never let patients down. Patients consult us in our hospital only when they have trust in us.

To always remember the goal of being the top Oncology Department in China, a sign written “Not just professional service but also meticulous care” is hung in our department. At first, it was written “Good service”, however, I think what makes patients come to our hospital is our profession instead of good service. Patients won't be satisfied if a nurse can't give an accurate injection but only has a good attitude. Thus, as an expert in oncology, providing patients with professional services is essential.

We believe that every patient who chooses our hospital

means they trust our profession, and this is what we need to cherish!

To keep the leading role among all departments, it is important to be innovative all the time. We should strengthen the cooperation among departments, and carry out research work in conjunction with clinical practice. Since 2015, we have set up four institutes for cancer research, including the Oncology Department in Tangdu Hospital, Department of Radiotherapy, Oncology Department in Xijing Hospital and Department of pathology in Fourth Military Medical University, aiming at strengthening cooperation and communication among different hospitals. An academic conference is held every quarter by Institute of Oncology. We associated with 40 experts in lung cancer and set up “Northwest Lung Cancer Union” to strengthen the cooperation in Northwestern region.

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Footnote

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