Review

Multidisciplinary Team and Team Oncology Medicine research and development in China

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Summary **In the context of transition from "Biomedical Model" to "Biology-Psychology-Society Medical Model", the treatment model of malignant tumors has changed from single-subject treatment to multidisciplinary collaboration treatment led by a Multidisciplinary Team (MDT). On this basis, the concept of "Team Oncology Medicine" strengthens the focus of malignant tumor treatment. This is not only improving cure rate and extending life span, but also paying close attention to patients' actual demands to improve their quality of life. There are many good studies and practices of Multidisciplinary Team and Team Oncology Medicine in the world. China is currently in the exploratory phase of the malignant tumor Multidisciplinary Team treatment model. Many hospitals have investigated and practiced a Multidisciplinary Team treatment model. China is faced with many problems to scientifically construct a malignant tumor treatment model which conforms to national conditions. These conditions include a medical model, a medical care insurance system, public hospitals reform, hospital management approaches, personnel framework, concern with patients' psychosis and psychology, and whether to tell patients their actual condition and how they should express their will, and so on.**

Keywords: Malignant tumor, treatment model, China

1. Introduction

Multidisciplinary Team (MDT) and Team Oncology Medicine are international medical hot topics in recent years. MDT is usually composed of specialists from two or more related disciplines, which work together to discuss some kinds of malignant tumors, and to form a clinical treatment plan (*1*). Team Oncology Medicine is patient-centered, the relevant specialists aim at patients' actual conditions and needs to guide patients with a team advantage, and provide extensive information, resources, and support. This treatment model places prime emphasis on alleviating treatment problems, symptom control, professional nursing care, recovery health care, and psychological intervention. It pays more attention to quality of life and the patients' actual needs as well as extending the patients' life span.

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2. Development of MDT

MDT model was introduced to the field of clinical medicine more than 10 years ago, and has been investigated in many disease treatment situations (*2-5*). Obvious achievements have been made in breast cancer, ovarian cancer, rectal cancer, prostate cancer, and lung cancer using the MDT treatment model (*6-10*). There are many international large-scale cancer centers such as M. D. Anderson Cancer Center (Houston, TX, USA), Philadelphia Veterans Affairs Medical Center (Philadelphia, PA, USA), the Netherlands Cancer Institute of Antoni van Leeuwenhoek Hospital (Amsterdam, Netherlands), and the National Cancer Action Team of St Thomas' Hospital (London, UK) which have set up a MDT treatment model (*11-14*). In this treatment model, the specialists from two or more departments such as oncosurgery, department of tumor medicine, tumor radiotherapy department, medical imaging department, pathology department,

and other related departments get together to discuss a patient's condition and form a treatment plan (Figure 1A). Taken as a whole, MDT lays particular emphasis on cure; it analyzes organism condition, pathologic type, involvement scope, clinical stage, and its development tendency, through applying available therapeutic tools to improve cure rate. A finding from University of Leeds (Leeds, UK) emphasized the importance of MDT in malignant tumor treatment (*15*). This study was a retrospective analysis of 7,602 surgically resected colorectal cancer patients for whom colorectal pathology minimum data sets had been collected. A threshold for an adequate lymphadenectomy was defined as retrieval of 12 nodes. The operating surgeons and reporting pathologists were identified for each tumor. Surgeons and pathologists were then assigned to be team or non-team members according to the results of the National Cancer Peer Review process. The final study data showed that MDT surgeons offered a 40% increase in the odds of retrieving at least 12 nodes, whereas the odds for MDT pathologists was more than twice that of nonspecialist pathologists.

In recent years, cancer morbidity and mortality are not optimistic in a worldwide scope. The International Agency for Research on Cancer evaluated statistical models to estimate incidence and mortality data for 25 cancers in 40 European countries (grouped and individually) in 2008. There were an estimated 3.2 million new cases of cancer and 1.7 million deaths from cancer in 2008 (*16*). The data from The American Cancer Society showed that a total of 1,479,350 new cancer cases and 562,340 deaths from cancer were projected to occur in the United States in 2009 (*17*). China has finished the third national death cause survey and the data show that cancers of lung, liver, stomach and esophagus accounted for nearly 72% of the total cancer deaths in China in 2005 (*18*). During

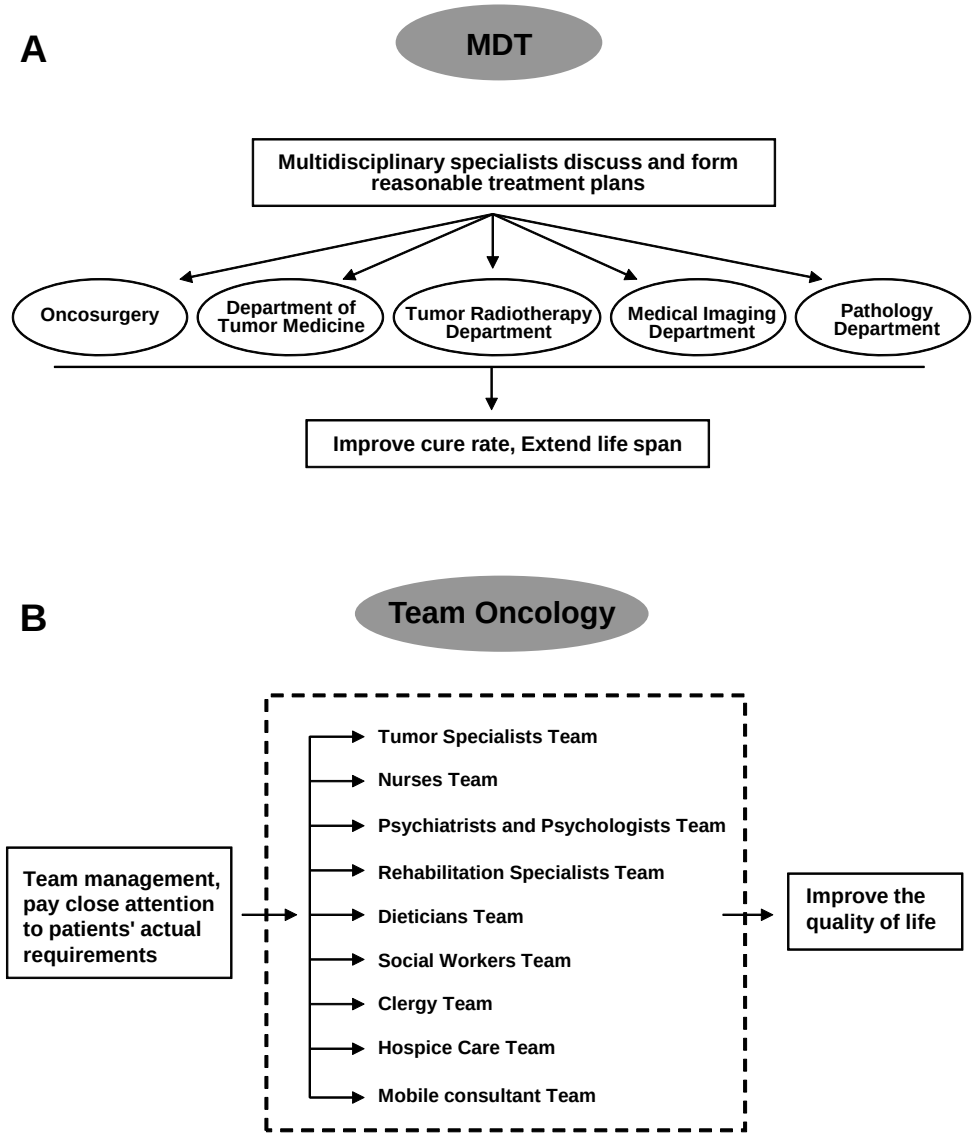

Figure 1. The composition and purpose of MDT (A) and Team Oncology (B).

2004-2005, the top three cancer mortality rates for males were lung cancer (41.34/100,000), liver cancer (37.54/100,000), and stomach cancer (32.46/100,000) in China and for females were lung cancer (19.84/100,000), stomach cancer (16.59/100,000), and liver cancer(14.44/100,000) (*19*).

The malignant tumor prognosis is not ideal. In lung cancer, for example, in the preliminary diagnosis of lung cancer patients, stage IIIB and IV lung cancer account for 50%, and stage I and II lung cancer that could be operable accounted for 30%. The recurrent rate is 30-75% in the surgical resection lung cancer patients and 80% of recurrent patients occur in the first two years after the first operation. The median time from surgical resection to recurrence was 11.5 months (*20*). Many more scholars realize that the concern of malignant tumor treatment is not only extending life span, but also quality of life; patients' requirements are not only simply survival, but also living a quality life with dignity. Therapy should not be at the expense of quality of life. Recognizing this fact, M. D. Anderson Cancer Center set up a consummate malignant tumor treatment – Team Oncology Medicine (Figure 1B). It caused an international research and exploration of Team Oncology Medicine. Many countries lead in the concept of "Team Oncology Medicine" in malignant tumor treatment using their actual conditions. Japan has set up "Japan Team Oncology Program (J-TOP)" and three Team Oncology Work Shops were successfully held. Many scholars have investigated a suitable model for Team Oncology Medicine (*21-24*). The proposed mission of setting up Team Oncology Medicine in Japan was to establish and promote evidence-based multidisciplinary cancer treatment in Japan through outstanding educational and training programs for healthcare providers and the public.

3. Research and practice status of malignant tumor MDT in China

From the view of the medical model, the experience of medical model practice in China in the past 30 years is that although the medical community has accepted the concept of a "Biological-Psychological-Social Medical Model", there are lots of difficulties in practicing this medical model. It does not seem to have made much progress (*25*). In this exploration stage, the international research and practice of MDT brings new ideas to the treatment model in China. The model of multidisciplinary discussion of a single disease was shaped in form by "The Carcinoma of Large Intestine Meeting" held in Shanghai in September 2006 and "The Colorectal Anal Surgery Meeting" held in Zhuhai in November 2006.

3.1. *The first medical institution leading in the concept of MDT in China*

3.1.1. *The whole framework of the MDT model*

West China Hospital of Sichuan University (Chengdu, Sichuan, China) is the first hospital introducing the concept of MDT in China. Combining the characteristics of a large public hospital in China, with a recognized treatment pathway in MDT for colorectal cancer and a medical project construction, the MDT for colorectal cancer project team set up the "multidisciplinary team-working for colorectal cancer of West China Hospital (MDT-CRC-WCH)" with its own characteristics and subject features. The whole constructive concept is forming an effective combination of MDT organizational structure and personnel framework through the guide of the MDT team culture (*26*). In this structure, six directions are determined: *i*) the series functional microinvasive colorectal cancer radical resection based on the MDT model, *ii*) the menu-type colorectal cancer classified operation plan based on a fast-track program, *iii*) the system of new operation types for colorectal cancer based on evidence-based surgery, *iv*) the process of information interactive communication and transmission based on paper clinics, *v*) the database construction of clinical and empirical study based on integrated and shared standards, and *vi*) the sub-professional collaboration platform construction based on the regional network. The six directions laid the basic idea of colorectal carcinoma MDT professional innovation, classified menu-type and comprehensive multi-level interactions.

3.1.2. *Special feature of MDT-CRC-WCH model*

Construction characteristic of MDT-CRC-WCH: MDT for colorectal carcinoma summarized the five basic characteristics of professionalism, classification, interaction, optimization and speed. Concretely speaking, it means a highly specialized technical level, a classified menu-type medical system, doctor-patient communication and interaction at the same time, a most optimum distribution of human resources and medical resources, and a high-quality and efficient fast clinical pathway.

Core competition of MDT-CRC-WCH: With technology as the core and team culture as the driving force, having broken through the traditional concept of colorectal operations, the colorectal carcinoma MDT set up a series of functional microinvasive colorectal cancer radical resections based on the MDT model and the system's new operation types for colorectal cancer based on evidence-based surgery. At the same time, it established the volunteer team composed of residents, interns, nurses, medical students and community volunteers. It also formed the relationship dominated by medical personnel and supported by other personnel.

Branch departments of MDT-CRC-WCH project group:

MDT set up the data-based team, follow-up team, nursing team and public team. Each team had the corresponding functional authority. The data-based team took charge of collecting all the materials and data. The follow-up team took charge of collecting the postoperative patients' prognostic information by telephone, short message service, letter, and email, and the team members gave patients the corresponding follow-up guide. The nursing team carried out nursing care around the clinical model, and it put forward higher requests on the process, system and comprehensiveness of care. The public team took charge of extending the scope and depth of the MDT platform by using cycling and various publicity strategies.

Personnel framework of MDT-CRC-WCH: Based on the main four principles – whole, match, voluntary, and interactive, it constructed reciprocation which is a "concentric circle" with the team of directors, coordinators, colorectal surgeons, related professors, nurses, and other assistants.

Consultation model of MDT-CRC-WCH: The main members are specialists of MDT. The content is identifying diagnosis, establishing treatment processes, making clinical decisions, and getting the feedback message by evaluating the implementation of the decision. The consultation meeting is held weekly, it strictly regulates the consultation time length and the completion time of interdisciplinary discussion of topics and the intervals of consultation. The consultation model divides effectively into preoperative consultation, perioperative consultation, postoperative consultation and follow-up consultation. It arranges chiasmatic clinical rounds by specialists from oncosurgery and tumor medicine departments twice a week. The multidisciplinary specialists communicate with patients and discuss the preoperative basic treatment plan, the postoperative long-term treatment plan and problems in follow-up treatment.

3.1.3. *Therapeutic effect of MDT-CRC-WCH model*

West China Hospital of Sichuan University compared the therapeutic effects between groups of the MDT model (106 cases) and the non-MDT model (129 cases) by retrospective analysis of patients' data diagnosed with colorectal cancer and accepted for in-hospital therapy during December 2006 and May 2007. The results showed that the in-hospital days of the MDT model group during the perioperative period and in the surgical ward were less than that of the non-MDT model group ($p < 0.05$). Also the MDT model group had a higher rate of cancer resection ($p < 0.05$). From the analysis of early postoperative complications, the non-MDT model group encountered more early postoperative ileus ($p < 0.05$). During 5-10 months follow-up, there was a lower cancer recurrence rate in the MDT model group ($p < 0.05$). This retrospective study came to the conclusion that the combined-therapy colorectal cancer strategy should be shown a priority compared to routine methods, not only for the more reasonable time arrangement of therapy, but also for the more satisfactory surgical outcomes (*27*).

3.2. *Beneficial exploration of the malignant tumor MDT model by many medical institutions in China*

Comparing China's actual conditions, there are many beneficial explorations of the malignant tumor MDT model in some cities with better consummate medical conditions. It was represented in Beijing and Tianjin in northern coastal areas, Shanghai in eastern coastal areas, Guangdong in southern coastal areas and Sichuan in the southwest. Some cancer hospitals with extensive experience in treating malignant tumors practiced the MDT model. Generally speaking, these practices absorbed the international advanced experience and explored the malignant tumor MDT model using China's actual conditions. From the view of specific implementation, through a multidisciplinary collaborative approach, all practices carried out multidisciplinary discussions and evaluated patients' conditions. Breaking through the disadvantage of single therapy, these practices formed scientific and reasonable individual treatment plans to improve cure rate and extend life span. Based on these, some hospitals made breakthroughs and innovations using their own conditions (Table 1).

3.3. *Theoretical discussion on the current situation and the challenge of the malignant tumor MDT model*

In 2008, Professor Wu Yilong, the standing director of the Chinese Anti-Cancer Association (Tianjin, China), published an article entitled "The Challenge of Malignant Tumor Combined Therapy". It set off a heated discussion on "The Current Situation and Challenge of the Malignant Tumor MDT Model" in China. According to China's actual conditions, many experts expressed their viewpoints and discussed this topic from various aspects (Table 2).

4. Thinking about the problems faced by the practice of malignant tumor MDT and Team Oncology Medicine in China

China is still in the exploratory phase of the MDT model, it has not yet been developed to the Team Oncology Medicine stage. West China Hospital of Sichuan University is the first hospital introducing the concept of MDT in China. The MDT-CRC-WCH has set up and promoted the clinical research development of the malignant tumor treatment model. Both the heated discussion on "The Current Situation and Challenge of the Malignant Tumor MDT Model" in

Table 1. The distinctive practices of malignant tumor MDT model in representative hospitals

Area	City	Representative Hospitals	The distinctive practices of MDT model
Northern coastal areas	Beijing	Beijing Cancer Hospital	Multidisciplinary collaborative group including department of traditional Chinese medicine and the divisions of basic research (*28*).
	Tianjin	Cancer Hospital of Tianjin Medical University	MDT model with radiotherapy and chemotherapy combined, stratified by group and combined therapy (*29*).
Eastern coastal areas	Shanghai	Fudan University Shanghai Cancer Center	MDT model paying close attention to various factors influencing the prognosis (*30*).
Southern coastal areas	Guangdong	Oncology Center in Guangdong General Hospital	MDT model with excellent team consisting of multidisciplinary talents (*31*,*32*).
		Cancer Center in Sun Yatsen University	MDT model with the regulation of single disease treatment, the single disease diagnosis and treatment management team composed of a chief expert, diseases experts, auxiliary department experts and coordinating secretary (*33*).
Southwest	Sichuan	Cancer Hospital of Sichuan	Developed four kinds of scale to evaluate the quality of life of Chinese cancer patients during the recovery period. Put forward firstly multidisciplinary comprehensive rehabilitation intervention model combined with oncology, psychology and social medicine (*34*,*35*).

Table 2. The discussion and the current situation of malignant tumor MDT model in China

Topics	Viewpoints	Current Situation
Sub-division system	**The advantage of "Division by therapeutic tool"**: Be conducive to the in-depth development of surgery, radiotherapy, chemotherapy and other subjects. **Disadvantage**: Under the single-subject treatment model, the diagnosis and the staging has not been standardized, as well as lack of good communication between disciplines. It is not conducive to patients to receive multiple medical resources. **The advantage of "Division by entity"**: The scientific and reasonable treatment plan developed by the systematic multidisciplinary consultation can make patients receive greatest benefits. **Disadvantage**: It can be divided into dozens of divisions according to tumor entity. It is not conducive to resource centralized management if every division has its own surgeons, physicians and radiologists (*36*).	The Cancer Hospitals make the division by entity and the General Hospitals make the division by therapeutic tool.
Leading talents	The leading talents are requested to master the knowledge of surgery, drugs, and radiation therapy. It means that the leading talents are not only able to develop clinical treatment plan, but also must have the concept of comprehensive treatment, experience in basic research and the practices of transformation research. They could apply a variety of therapeutic tools reasonably and achieve the engagement of the different therapeutic tools (*36*,*37*).	The lack of leading talents conditioned the realization of the details.
The training of tumor specialists	It should strictly guard a pass of the hospitals' qualifications where the tumor specialists are trained. Besides, we should improve the tumor specialists' training institution and the reasonable mechanism of personnel flow. We should train tumor specialists and pay more attention to the concept of MDT model and truly understand the application of surgery, radiotherapy and chemotherapy (*38*,*39*).	Because of the limitations of hospitals' academic level, equipment conditions and the training system, there is a big difference in tumor specialists' level between different hospitals.
The establishment of Cancer Center	It is advocated to establish Cancer Center. At the same time, we should give full play to the role of the Chinese Anti-Cancer Association's professional committees. Within the framework of the Cancer Center, organizing relevant professionals to form a project team is to facilitate communication and collaboration with each other (*39*).	From the 1950s, Chinese government commenced establishing a Cancer Hospital and Research Institute for every province. It has formed many distinctive cancer centers with years of development. However, the MDT treatment model needs to be further improved under the framework of the Cancer Center.

China and the distinctive practices of the malignant tumor MDT model in representative hospitals have played an active role in promoting clinical research development of the malignant tumor treatment model. There is no doubt that the concept of malignant tumor MDT has become the general consensus of the clinical workers in China. However, it has not had a nationwide organization to formulate a development strategy for the MDT treatment model and Team Oncology treatment model. Although the MDT model has been implemented in some hospitals, it still faces many difficulties. How should the MDT model suitable for China's actual conditions be constructed and how should the development of the MDT model for Team Oncology Medicine with Chinese characteristics be further advanced? In-depth reflection on these issues will promote the best development of the malignant tumor treatment model in China (Table 3).

i) With the "Biomedical Model", hospitals' service target is "disease". It carries out tasks as "disease-centric". The service model uses medicine, surgery and other ways to give patients relief. But with the "Biology-Psychology-Society Medical Model", the service target of hospitals is no longer "disease", but is "patient-centered". It requires hospitals and medical workers to change traditional services depending on drugs, surgery, and other treatments, and establish a comprehensive and multi-dimensional service model with psychological treatment and humane care. The aim of increasing the efficiency of treatment and restoring health status is also required to change the physician-patient relationship from "Active-Passive" to scientific integration with "Active-Passive", "Guidance-Cooperative", and "Participation-Consultation". China is still in the transformation stage from "Biomedical Model" to "Biology-Psychology-Society Medical Model". In this transitional period, how can hospitals change the service model to explore the malignant tumor treatment model? How can hospitals build a harmonious and equal relationship between doctor and patient? How can an all-dimensional treatment system combined with medical technology, mental health and human care be created? It requires hospitals, society and patients to make joint efforts to solve these problems.

ii) China's basic medical insurance system is composed of the basic medical insurance system for employees in urban areas, the basic medical insurance

Table 3. Thinking about the problems faced by constructing malignant tumor MDT and Team Oncology Medicine with Chinese characteristics

Problems	Thinking
The service model and the physician-patient relationship under the change of medical model	How to truly achieve "patient-centered"? How to change the traditional services depending on medicine, surgery and other treatments into a comprehensive and multi-dimensional service model with psychological treatment and humane care? How to change the physician-patient relationship from "Active-Passive" into scientific integration with "Active-Passive", "Guidance-Cooperative" and "Participation-Consultation"?
The expense burden under the basic medical insurance system	How to further expand the coverage of the basic medical insurance system to benefit more patients with malignant tumors? How to further increase the input from government and society to reduce the proportion of personal health expenditures for patients with malignant tumors? How to further regulate medical practice and reduce medical expense to relieve the family burden for patients with malignant tumors?
The public hospitals reform in the context of China's medical reform	How to implement the responsibilities of the public hospitals held by government? After the abolishment of the drug price addition, does government financing have sufficient financial resources to compensate public hospitals? Will the additional costs of the pharmaceutical service fee and adjusting technical service fee be passed on to patients? How to transform a part of public hospitals into non-public hospitals? How could government and hospitals overcome the negative impact caused by the choice of therapeutic tools due to financial gain? How to develop and improve the scientific clinical rules about oncology and push tumor specialists to abide by the rules?
The way of hospital administration	How to adjust the department set and the management philosophy according to the demand of patients with malignant tumors and the hospitals' own actual conditions? How to improve and enhance the quality of medical services? How to provide patients a convenient and comfortable medical treatment environment?
Personnel framework under the treatment model	Is it suitable for China's actual conditions to form the team framework composed of team leader, team contact person (tumor coordinator), multidisciplinary experts team for consultations, professional care team, nutrition and recovery guidance team, social workers and so on? What is the requirement for the team members? How to make the members work closely with each other and put forward a rational division of work?
The psychological concerns	How to form a psychological experts team for malignant tumors in accordance with China's actual conditions? How to give full play to the role of social workers? How to mobilize all social strata to give patients with malignant tumors extensive care and psychological support?
The informed consent and willingness expression for patients	Under the influence of traditional Chinese culture and concepts, should doctors tell patients their actual conditions? Which way is better to inform patients? How to choose the opportunity? How to fully respect patients' willingness expression?

system for residents in urban areas, the new-style rural cooperative medical care system, and the medical system for disadvantaged groups in urban and rural areas. This covers the bulk of urban employees, urban non-working population, rural population, and vulnerable groups in urban and rural areas. According to "2009 Chinese Health Statistical Yearbook", in 2008 the total population of China was 13.28 hundred million, the basic medical insurance system for employees in urban areas and residents in urban areas involved 3.18 hundred million people, the new-style rural cooperative medical care system involved 8.15 hundred million people, and the medical system of disadvantaged groups in urban and rural areas benefited 0.46 hundred million people. Thus it can be seen, that nearly 2 million people had not been incorporated into the basic medical insurance system. The total health expenditure of China is composed of government health expenditure, social health expenditure and personal health expenditure, accounting for 20.4%, 34.5%, and 45.2% of the total health expenditure in 2007. Liver cancer led cancer mortality in China. The average per capita health expenditure for liver cancer was 9,402.2 yuan in 2008. The average per capita personal health expenditure for lung cancer patients was 4,249.8 yuan, accounting for 24.9% of urban residents annual per capita income (the annual per capita income of urban residents was 17,067.8 yuan in 2008) and 63.4% of rural residents annual per capita income (the annual per capita income of rural residents was 6,700.7 yuan in 2008) (*19*). Under the current basic medical insurance system of China, the problem is how to further expand the coverage of the basic medical insurance system to benefit more patients with malignant tumors, how to further increase the input from government and society to reduce the proportion of personal health expenditures for patients with malignant tumors and how to further regulate medical practice and reduce medical expense to relieve the family burden for patients with malignant tumors. This requires the Chinese government to exercise macro control over the basic medical insurance system and give full play to commercial health insurance and other forms of supplementary medical insurance to benefit patients with malignant tumors.

iii) China had 19,822 hospitals by the end of November 2009, and the number of public hospitals was 14,086, accounting for 71.1%. The number of outpatients was estimated to reach 18.5 hundred million in 2009, and 17.1 hundred million patients went to public hospitals, accounting for 92.4%. The number of inpatients was estimated to reach 81.2 million, and 75.2 million patients went to public hospitals, accounting for 92.7% (*40*). Thus it could be seen that over 90% of patients went to public hospitals. In reality, there is high expense and low service in public hospitals due to inadequate government input, imperfect hospital management mechanisms and other reasons. On 23 February 2010, the Ministry of Health and five other ministries jointly issued "Guidance on Pilot Reform of Public Hospitals" (*41*), selecting 16 cities (6 cities in the eastern region, 6 cities in the central region and 4 cities in the western region) as a national guide for public hospital reform in some areas. It adheres to the guiding ideology of the public nature of public hospitals to safeguard people's health and first place rights, and it guides the often-criticized system of pharmacies to support doctors' "cut". The idea for reform is changing the compensation mechanism from service charges in public hospitals, medicines plus income and government subsidies into service charges and government grants. The Guidance pointed out that the government will make additional pharmaceutical service fees and adjust part of the technical service fees. The reasonable reduced income for public hospitals will be compensated by the health insurance fund and government investment (*42*). Meanwhile, to promote the pattern of diversified hospital operators and encourage social organizations to run non-profit hospitals, on April 2010, the Chinese government issued "The Major Arrangement about the Five Focal Points of Health System Reform in 2010", putting forward "researching and exploring how to transform a part of public hospitals into non-public hospitals" (*43*). The Public Hospitals Reform involves various aspects such as operational mechanisms, personnel systems, hospital management, compensation mechanisms, and so on. In the existing medical conditions of China, the question is how to implement the responsibilities of the public hospitals held by government and how to form separate management from operations, and gradually realize unified management of public hospitals to establish a coordinated, integrated and efficient public hospital management system. After abolishment of the drug price addition, does government financing have sufficient financial resources to compensate public hospitals? Will the additional costs of the pharmaceutical service fee and the adjustment of the technical service fee be passed on to patients? Also, how to transform a part of public hospitals into non-public hospitals? To solve these issues, support of the basic medical insurance system, the essential drugs system and a series of strong supporting policies and practical measures are needed (*44*). For patients with malignant tumors, the current reform of public hospitals was carried out for the hospital as a whole in terms of reform, and has not yet been refined to specific policies and regulations on disease. In this condition, how could government and hospitals overcome the negative impact caused by the choice of therapeutic tools due to financial gain? How to develop and improve the scientific clinical rules about oncology and to push tumor specialists to abide by the rules is another question. In the context of reform in public hospitals, constructing malignant tumor MDT and Team

Oncology Medicine with Chinese characteristics will face a rare chance for development as well as tough challenges.

iv) In the "patient-centered" system, the malignant tumor MDT and Team Oncology Medicine model is not the simple sum of "surgery + radiotherapy + chemotherapy", but determining the actual treatment according to the patient's life expectancy, treatment tolerance, expectation of life quality, patient's wishes and the tumor's specificity. For hospitals, how to grasp the overall layout, team development, evaluation system, resource allocation and other key factors to adjust the departments set and the management philosophy according to the demand of patients with malignant tumors and the hospitals' own actual conditions is another concern. How to improve and enhance the quality of medical services and how to provide a convenient and comfortable treatment environment to enhance the patients' confidence against resistance? These important issues need to be solved by hospitals' top executives.

v) M. D. Anderson Cancer Center has formed a more complete tumor treatment team framework in practice. It is patient-centered where the relevant specialists such as tumor specialists team, nurses team, psychiatrists and psychologists team, rehabilitation specialists team, dieticians team, social workers team, clergy team, hospice care team, and mobile consultant team get together to guide patients with the team advantage throughout treatment. In China, many hospitals such as West China Hospital of Sichuan University have explored the personnel framework based on absorbing the international advanced experience (*45*). Is it suitable for China's actual conditions to form the team framework composed of a team leader, team contact person (tumor coordinator), multidisciplinary experts team for consultations, professional care team, nutrition and recovery guidance team, social workers, and so on? What are the requirements for the team members? How to make the members work closely with each other and put forward a rational division of work? These issues need to be further explored and practiced.

vi) From the view of psychological concerns of patients with malignant tumors, a psychiatrists and psychologists team in China has not yet been formed. With the malignant tumor MDT model, West China Hospital of Sichuan University established the "Colorectal Cancer MDT Volunteer Team" and "Gastrointestinal Cancer MDT Volunteer Team". The Volunteer Team has about 300 members, and most of them are medical students from different grades. The task emphasis on research, such as data collection and arrangements with patients with malignant tumors, surgery studies, laboratory studies, and so on need to be explored further (*46*). Although the work involves communication between doctors and patients, with the restriction of medical student's own knowledge, they could not carry out scientific psychiatric treatment and psychological persuasion, and they could not compare information with the psychiatrists and psychologists. Under these conditions, how can the teams form a psychological team of experts for malignant tumors consistent with China's actual conditions? How can the teams give full play to the role of social workers to help patients relieve negative emotions? How can the teams mobilize all social strata to give patients with malignant tumors extensive care and psychological support? These are important problems faced by the nation and society medical institutions, and the settlement needs the support of national policies, social concerns and hospital measures.

vii) Knowing the patient's condition is not only a medical problem, but also an ethical issue (*47,48*). In China, most families worry that patients will feel despair and refuse treatment if they know the actual conditions, so the families conceal the truth from the patients with malignant tumors. Many international studies have shown that patients will take the initiative with the treatment if they know the actual conditions. Under the influence of traditional Chinese culture and concepts, should the doctors tell patients their actual condition? Which is the best way to better inform patients, how to choose the opportunity, and how to fully respect patients' willingness of expression? These are not only complex social problems, but also problems that need to be solved by medical personnel, patients and their families.

5. Conclusion

In the "Biology-Psychology-Society Medical Model", with the scientific and technological progress and people's understanding of solid tumors, the malignant tumor treatment model has basically changed from single-subject treatment to multidisciplinary collaboration treatment which was led by a Multidisciplinary Team. On this basis, a more consummate malignant tumor treatment – Team Oncology Medicine has been set up, which pays close attention to patients' actual demand to improve the quality of life. China is in the exploratory phase of the malignant tumor MDT model currently. In the context of international MDT research and practice, many hospitals have made useful explorations of the malignant tumor MDT model and have made some progress. However, China is faced with many problems to scientifically construct the malignant tumor treatment model which conforms to national conditions, such as medical model, medical care insurance system, public hospitals reform, hospital management approach, personnel framework, concern with patients' psychosis and psychology, and whether to tell patients their actual condition and how they can express their will, and so on. In the transitional phase of the medical model and in the context of China's medical reform, how can the

MDT model and Team Oncology Medicine model be constructed with Chinese characteristics? It needs to be further explored and practiced. It is still a long-term and arduous task in China.

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