

Medical Care of Cardiac Rehabilitation in China

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ABSTRACT

Compared with developed countries, the heart disease rehabilitation market of China, a developed country, is still immature. As rehabilitation after heart disease is very important for patients, the author studied the current situation, prospects and development space of China's heart disease rehabilitation market through doing market research and data analysis. Through analysis, I found that in-hospital rehabilitation services can no longer meet the patients' increasing rehabilitation needs, and rehabilitation medical care urgently needs to be extended to the community. Remote rehabilitation, high-end rehabilitation and intelligent rehabilitation have become new trends. The development of clinical medicine has also promoted the efficiency of rehabilitation after cardiac surgery.

Keywords: Rehabilitation, China, Cardiac disease, Heart disease, Market of rehabilitation

1. INTRODUCTION

Medical care of rehabilitation has gradually attracted aggregated attention of the Chinese government. Relevant policies and social capitals are continuously encouraged to support the development of the field, accompanied by the acceleration of the establishment of a three-tier medical rehabilitation service system. The rehabilitation programs are also incorporated into the scope of medical insurance, promoting the emergence of more specialists and technologies dedicated to this industry [1]. The medical care of rehabilitation in China has been welcomed in a glorious situation and transit to a more promising vista in this new era. The number of private-owned hospitals has skyrocketed in the past few years, over 10,000 and exceeding that of the public hospitals in 2015. The recorded visiting number of outpatients of rehabilitation in hospitals, moreover, has grown from 5,326,000 to 10,267,000, with an average annual compound growth rate of more than 8.5%, during the period of 2010–2018. The number surpassed 10 million for the first time in 2018. The explosive market dilation of rehabilitation institutions and inpatient needs has driven this category of medical industry into a stage of rapid development.

Various medical institutions and social capitals have grasped this opportunity of the “new” breaking point, ready to usher in the greater prospective, aided by the policies and market demands. During the research, I found that there are not many heart disease patients undergoing rehabilitation after surgery in China so I

decided to study the current situation, prospects and development space of China's heart disease rehabilitation market. The purpose is to know the development trend of the rehabilitation market. This research will provide predictions for the future development of the rehabilitation industry

2. MARKET DEMANDS OF MEDICAL REHABILITATION

Medical rehabilitation is a medical branch that promotes the rehabilitation of disabilities and patients after surgeries utilizing multiple tools and instruments. It also involves the researches related to the prevention, assessment, treatment of functional disorders, forming a complete medical system with other branches like clinical medicine and health care [2].

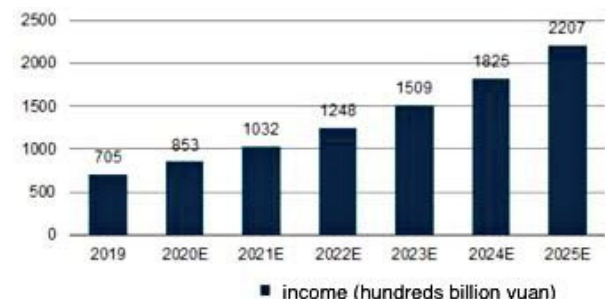


Figure 1 Total current and predicted revenue of rehabilitation services in China from 2019 to 2025.

See figure 1, the current situation of the rehabilitation supply system in China, despite the

tremendous market demands, has been under an incubation stage for a rather long time period due to insufficient public hospital resources, a low number of rehabilitation medicine department, and specialists, as well as limited rehabilitation beds in hospitals [3]. There are commonly shortages in advanced rehabilitation medical facilities in medical institutions which are currently in small scales, low bed numbers, scattered resources, and inadequate service items [4]. The development of the rehabilitation medical service capacity, consequently, is curbed to a certain degree by the lack of the rehabilitation resources and allocations in China.

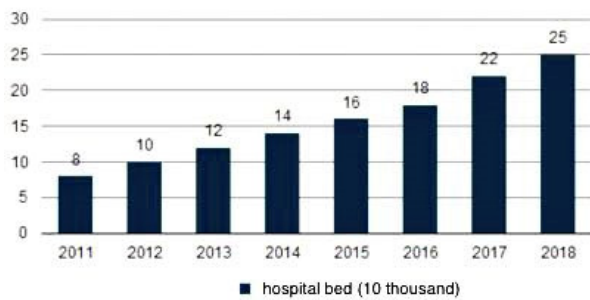


Figure 2 The trend of the bed number in rehabilitation medicine department of medical institutions in China from 2011 to 2018.

The Outline of the National Healthcare Service System Plan (2015-2020) clearly stated that the bed allocations should be tilted towards nursing and rehabilitation in primary healthcare institutions. The current basic need, calculated as 0.18 beds per one thousand citizens, would generate a shortfall of 450,000 beds for this country, assuming that the target is 0.5 beds per one thousand citizens, as mentioned in the Beijing Healthcare Service System Plan (2016-2020). This indicated that there is a huge potential for the expansion of the medical rehabilitation market in China.

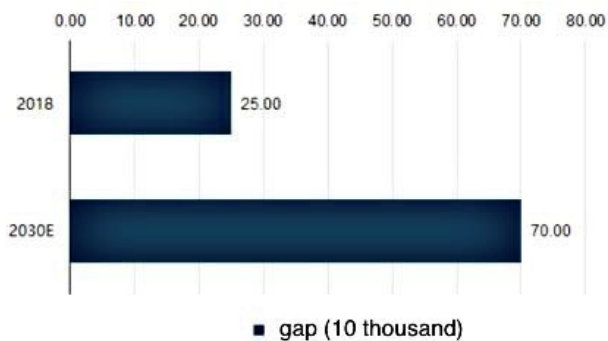


Figure 3 The gap of bed number lacking in rehabilitation medical service in China.

The minimum requirement for the infrastructure of a rehabilitation center is at least 0.3 rehabilitation therapist per bed. See figure 2 and 3, the number of this type of therapists, accordingly, should be 75,000 which is 25,000 more than the actual practitioners [5].

The private rehabilitation institutions constitute more percentage than the public ones. The main reason could be attributed as the more favorable attraction from social capitals to those specialty hospitals rather than the public medical system. The specialized rehabilitation centers may require lower cost per bed, less reliance on doctors, and fewer medical risks. It becomes evident that the social capital could easily achieve expected investment returns on them. The entering of the capital, surely, would lead to a positive effect on alleviating the shortage of rehabilitation medical supplies. The private rehabilitation centers, however, exist significant gaps in medical resource provision, brand influence, stability of patient sources, and medical practitioner allocation, compared with the public hospitals [6].

3. CURRENT STATUS OF POST-OPERATIVE CARDIAC REHABILITATION

Cardiac rehabilitation is a vital component of primary, secondary, and tertiary prevention of heart disease and it could slow down the process of atherosclerosis. The number of cardiac rehabilitation patients remains as a small portion of the entire group [7]. The official information demonstrated that a well-known cardiovascular hospital performs about 30,000 cardiac surgeries annually, while less than 1% of the post-operative patients participated in the cardiac rehabilitation. It is as a thumb rule that cardiac rehabilitation can significantly reduce recurrent cardiovascular events and effectively elevate the body-function of the patient and facilitate the quality of survival chance. A comparative study conducted by a Canadian institution [1] revealed that 70,000 patients after surgery joined in the program of cardiac rehabilitation among 600,000 patients who were hospitalized for the acute coronary syndrome, percutaneous coronary intervention, or coronary artery bypass surgeries. See figure 4 and 5, Their mortality rate was distinctively higher than who did not take any programs of cardiac rehabilitation after a one-year or five-year revisit [8].

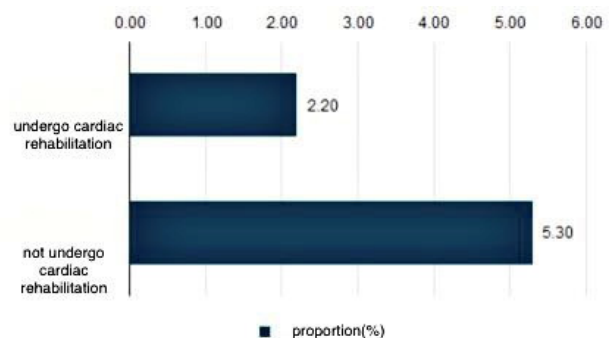


Figure 4 The post-operative mortality rate from one-year data collection of a Canadian study.

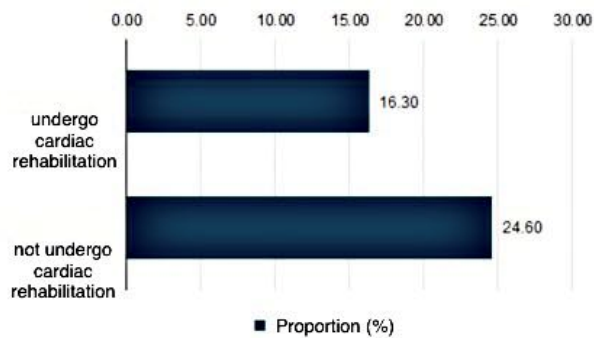


Figure 5 The post-operative mortality rate from five-year data collection of a Canadian study.

A major challenge in the field of cardiac rehabilitation is the low actual referral rate after the surgery. The global referral rate is only 43%, with even lower than 40% in developing countries. Cardiac rehabilitation could be combined with professional consultation and home-smart services to enhance the participation level of cardiac rehabilitation.

The patient will face various meddling situations as his or her body gradually recovers during the process of cardiac rehabilitation. Specifically, how to adjust medications after changes in heart rate and blood pressure, how to treat wounds, when to start exercising and pick up the right type, and what is the intensity and frequency of the exercises? These are all issues that need to be evaluated, guided, and monitored by a professional cardiac rehab physician.

Only under such guidance could patients achieve the best cardiac rehabilitation results. Nearly 60% of the patients in the rehabilitation centers came directly from various surgical hospitals for cardiac rehabilitation after surgery [9]. The excellent recovery from the rehabilitation there could enhance the safety and quality of the surgical treatment they received.

China has just started to establish standards and training practitioners in the field of cardiac rehabilitation, lagging far behind compared to developed countries like European countries, America, and Japan.

4. TREND IN REHABILITATION MEDICINE

In-hospital rehabilitation services can no longer meet the demanding rehabilitation needs of the patients. It is urgent to extend this medical rehabilitation further to the community clinics. The neighboring rehabilitation facilities not only bring great convenience to patients, but also reduce the patients' occupation of hospital beds to a certain extent. This transition is of great significance for the improvement on utilizing medical resource, as well as enhancing the quality and effectiveness of this service. Community rehabilitation could be defined as the provision of long-term

rehabilitation services to treat patients who generally do not need to be hospitalized and must receive regular treatment and training in rehabilitation facilities. Another mode of service is that rehabilitation physicians or therapists provide in-home medical guidance for the patients [10].

4.1 Emerging remote rehabilitation

An escalating number of patients expect to enjoy medical services without leaving home via the Internet, with penetration of the web and the help of multiple intelligent devices. This brings expansion opportunities for remote rehabilitation. The Internet technology, considering the current serious situation of short-handed therapists, could standardize rehabilitation courses by disease type, provide online rehabilitation consultation and training guidance, and carry archive management and follow-up services. The application of innovative wearable devices and motion recognition technology could not only effectively alleviate the insufficiency of therapists, but also carry timely follow-up revisit on rehabilitation plans which would urge the patients to fulfill the rehabilitation tasks as arranged. Remote rehabilitation is also featured by consistency and regularity, and is relatively at low cost and easily accepted by the patients' families.

4.2 Great potential of high-end rehabilitation

There are increasing demands of high-net-worth individuals on high-end rehabilitation due to a high incidence of shoulder and neck discomfort, hypertension, endocrine, and other related syndromes caused by greater work pressure. The income level and health awareness of the general public are gradually elevated in China. High-end elder care, private hospitals, private doctors have become popular services in recent years. The market of high-end rehabilitation has been introduced with new developing opportunities.

4.3 Smart rehabilitation

Many modern high-technologies have been introduced into this field, including biofeedback, new digital photography, biochips, biosensors, microelectronic pulses, artificial intelligence, and molecular design and simulation. They help forms systematic intelligent management of the medical rehabilitation industry, leading to a facilitated growth of smart rehabilitations.

The implementation of a rehabilitation treatment strictly depends on the requirements of training programs, class frequency, and session length, as well as the patients' willingness to cooperate, degree of specialization, and responsibilities of the therapists. Utilization of rehabilitation robots could aid in

standardizing the treatment process and urge the patients to completely fulfill the rehabilitation training programs.

4.4 Rehabilitation medicine driven by clinical medicine

The mortality rates of certain serious illnesses are evidently lowered thanks to modern clinical development. The survivors of the diseases are longing for the speedy recovery of body functions and returning to normal life. They have posed more challenges to the development of rehabilitation medicine. New diseases, furthermore, demonstrate more complex characteristics under the change of the environment, which generates higher technical requirements for rehabilitation medicine.

Rehabilitation therapists should continuously strengthen their rehabilitation treatment techniques through standardization and systematic training and learning.

5. CONCLUSION

After deep research on the condition and expansion capacity of Chinese rehabilitation market, the author concludes that remote rehabilitation, high-end rehabilitation and intelligent rehabilitation have become new trends. Also, the development of clinical medicine has promoted the efficiency of rehabilitation after cardiac surgery. The research of after-surgery rehabilitation also indicates that it is promising to continue developing the rehabilitation industry of China. The shortcoming of the current paper is that it only studies the development of the rehabilitation industry from the market and data, but ignores the subjective factors of patients, an important element, who also have impact on trends of rehabilitation industry. After conducting a deeper research on the needs of patients, this paper will be able to convey more conclusions from the perspective of the patient, exploring the patient's preference for rehabilitation and the main factors of patients in choosing the type of rehabilitation.

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