REVIEW

Value-based Practice: Integration of Cancer Rehabilitation and Palliative Care in Oncology Services

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Key words: cancer rehabilitation; palliative care; hospice; disability; quality of life

Abstract Value-based care model has been evolving to organize medical services around the patient and provide the full cycle of care for a medical condition. The full cycle of care model encompasses inpatient, outpatient, rehabilitation as well as supportive care such as palliative care and nutrition support. Cancer rehabilitation and palliative care have emerged as two important parts of value-based practice for oncology patients. More clinical evidence suggests that early intervention of oncology rehabilitation program and palliative care are likely to improve the patient outcome and reduce the overall medical cost for the patient and his or her family as well as for medical service providers. Although interest has been raised in Chinese oncologists, but effectiveness of incorporating these two services in clinical practices has not been adequately demonstrated. An understanding of scope of cancer rehabilitation and palliative care may help facilitate the integration of both into the oncology care continuum in efforts to improve patients' physical, psychological, cognitive, functional health and quality of life.

IN the past several decades, the philosophy of medical practice has been shifted to focus on the values-based practice. The decisions in medicine are increasingly complex than ever due to advance of medical technology and new therapeutic availabilities. Physicians need to take clinical governance, practice quality assurance, and cost-effectiveness into the consideration to care for patients. The practice model has also been shifted from volume-based to value-based services. A value-based service is provided around most common co-occurring medical conditions and complications. It requires an

integrative care unit with a dedicated team that devote a significant portion of their time to the medical condition with a physician team captain and a care manager overseeing each patient's care process. The dedicated team accepts joint accountability for outcomes and costs.

Cancer has become a chronic disease, and it is costly and time-consuming for patients. In the United States (US), value-based practice is a new transformational healthcare delivery model in which hospitals and physicians are reimbursed based on patient health outcomes and rewarded for helping patients improve their health, reduce the effects and incidence of chronic disease. More public health research data shows the benefits of a value-based practice to all stakeholders, including patients and their family, medical institutes, payers, suppliers, as well as society.

Two important components, cancer rehabilitation

Received: September 28, 2018; accepted: October 22, 2018.

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Cite this article as: Zhu Y. Value-based practice: integration of cancer rehabilitation and palliative care in oncology services. Chin Med Sci J 2018; 33(4):204-209. doi:10.24920/003523.

and palliative care, have been recognized in recent years and valued to improve the overall outcomes for cancer patients. These two services extend from helping recovery from cancer treatment to the end-of-life care (EOLC). They add value for the full cycle of care in clinic setting. These two specialties share common goals to improve patients' quality of life by improving the levels of functioning and comforts in daily life. They both focus on better managing cancer-related symptoms or cancer treatment-related side effects,¹ improving quality of life of patients and families, valuing patient and family preferences and sharing decision-making process. They also aim to improve medical care efficiencies² and minimize costs. Even the goals of these two services are often aligned, nevertheless, different specialized skills and approaches are used in the care of patients through the disease stages. Cancer rehabilitation emphasizes short- and long-term solutions of improvement in functioning,³ while palliative care focuses specifically on improving immediate quality of life (QOL) in cancer patients that related to physical, psychological, and family distress.⁴

This article describes roles of cancer rehabilitation and palliative care, highlights how the individual service can contribute to an integrative care process and complement one another to the quality of care services.

Importance of cancer rehabilitation and palliative care

With the advanced medical technology, there are growing number of adult and childhood cancer survivors who have been living with the disease and the treatment-related side effects for many years.⁵ Most of them often live with multiple chronic symptoms that can be disabling, medically complex and even life-threatening if not well managed in long follow up phases.

In traditional sense, rehabilitation focuses on reducing the level of disability associated with impairments, such as motor deficits associated with paraplegia. This condition can be managed through assisting via an appropriate wheelchair, training, and use of assistive devices for handling daily living activities. Early 1980, benefits of rehabilitation services for cancer patients were not recognized, therefore, little of the rehabilitation services were designed and available to cancer patients. Issues existed in multiple layers including inadequate professional education and awareness trainings, problems with financing cost of care,

etc. Until 1990s, more research data suggests that the conventional rehabilitation is effective in managing cancer related functional impacts. Marciniak and associates at Northwestern University studied patients admitted to a rehabilitation hospital because of functional loss related to cancer or its treatment over a two-year period. The data showed rehabilitation interventions were effective in gaining the functions for all subgroup patients between admission and discharge.⁶

Disability in cancer patients often results from disease and treatment related complications, such as deconditioning, neurologic and musculoskeletal complications. In clinic, the most common symptoms seen in cancer patients can range from fatigue, pain, weakness, dyspnea, nausea, vomiting, being anxious, depression, and delirium.² Almost 74% of patients who were under chemotherapy stated fatigue or some degree of "lack of energy", which would not be recovered by bed rest. Pain was the fourth most common symptom, with an overall prevalence of 63%. Other symptoms occurring in more than 50% of patients may include feeling sad or nervous, drowsiness, and difficulty in sleeping. In another study on patients with pancreatic cancer, 82% reported pain.⁷ For late stage cancer patients, the prevalence of those symptoms is even higher. Furthermore, late stage cancer patients have more serious physical limitations because of cancer progression, bed rest, and treatment related consequences. In these patients, unable to recognize the issues and inadequate symptom control can have a major functional and psychosocial impact, causing significant distress and impairing quality of life.

The palliative care and hospice movement have been incredibly grown in US in the past two decades. One of reasons is that the Medicare, the largest medical plan in US, is influential in the field because a larger number of beneficiaries are elderly patients. The palliative care services have been mostly utilized in the elderly patients with late stage chronic disease and whose life span is within 6 months. There are mounting evidence that in patients with advanced cancer, palliative care benefits quality of life and even survivals.⁸ From perspective of full cycle of care, palliative care and hospice services have demonstrated value and meet the needs for the end of life care.

Understanding the scope of cancer rehabilitation

Cancer rehabilitation is a complex care program and need multidiscipline team led by specialists. It has

focused on to restore the function after cancer therapy to the premorbid status and maintaining patients' function during length of cancer therapy.

Cancer patients often experience many concurrent impairments depending on primary diseases, disease progression as well as the subsequent treatment plans. The complexity of the impairment presentation can be overwhelming for oncologists or the oncology team who are not generally trained to diagnose and treat these issues. Therefore, conventional interdisciplinary model for cancer rehabilitation care is to address those complex disabilities.

One of common example is that the rehabilitation team play a major role in the management of cancer fatigue. Most cancer patients have experienced various degrees of fatigue throughout the course of treatments and the disease. It is one of the most distressing problems affecting patients and need to be well managed by rehabilitation team based on the individual patient's condition and coordinate the rehabilitation schedules based on the patient treatment plan.⁹ Physical therapy and occupational therapy play important roles in helping patients to perform appropriate therapeutic exercise, coaching energy conservation techniques, assisting patients to handle the daily activities, and monitoring any new sign of disease development as well.^{10,11}

One of common misunderstandings in the scopes of cancer rehabilitation is the confusion with exercise programs, which do not address the range of impairments that cancer patients encounter. An exercise-only based model¹² of cancer rehabilitation does not support the various cancer diagnosis or treatment related issues, such as speech, swallowing impairments in head and neck cancer patients induced by surgery and radiation therapy, or cognitive impairments in primary or metastatic brain cancer, or surgical and radiation treatment related lymphedema in breast cancer, genital cancer or head and neck cancer patients. It is important for healthcare professional to recognize that while exercise is a key component of the conventional rehabilitation model, it does not represent the totality of the services provided to cancer patients.

Understanding the scope of palliative and hospice care

Palliative care has been defined by The World Health Organization as an approach "that improves the quality of life of patients and their families facing the problem

associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and assessment and treatment of pain and other problems, physical, psychosocial and spiritual".¹³ Palliative care focuses on the management of pain as well as psychologic, social, and spiritual problems that interfere with quality of life for advanced cancer patients. Although significant differences in practice patterns may exist depending upon the actual service line available for various institutes,¹⁴ palliative care in oncology settings often is referred as a consultation service. When terminal ill patients are exhausted with all available treatment options, oncologist most likely will refer patients to hospice services for the end of life care. More hospice services are provided at home care settings in recent years.

Since last two decades, palliative care consultation services have been increasingly implemented in the American health care system,¹⁵ and more practice data has showed the improved patient experience in community-based care setting, the benefits of palliative care in terms of QOL, economic, and outcomes.¹⁶⁻¹⁸

Early introducing palliative care to cancer patients and families is an important part of patient education. Using layman language to clearly communicate with patients and family regarding the benefits of palliative care is essential to improve patient and family's understanding. There are also needs to promote palliative care education in professional colleagues to minimize service confusion, to help for better understanding and acceptance, and to promote patient referral. Despite evidence consistently demonstrating its benefits to QOL in patients,⁸ palliative care is still widely misunderstood not only by oncologists but also by patients and families.

Integrative cancer coordination care: a value-based practice moving forward

To establish a high-quality cancer care service, oncology teams need to work with cancer rehabilitation or palliative care teams to help co-manage these complex or refractory symptoms. Rehabilitation clinicians may treat patients aiming at a cure of the underlying neurologic or musculoskeletal condition. Palliative care referral is often triggered by patients' high symptom burden or metastatic disease, with approach focusing on symptom control instead of curing the illness. Most patients will need parallel services which encompass a multidisciplinary team involvement to implement the care plan. It is a particular truth when disease

recurrence and at the end of life. In advanced cancer patients, using rehabilitation techniques for palliating purpose may still prevent from a decline, or even improve functions in activities of daily living, and help in pain relief and endurance.¹⁹ The bed side physical therapy has been shown to be a feasible approach even for terminally ill patients as well.²⁰ There were evidences showing that even limited rehabilitation services would provide benefits in a hospice for individuals with advanced, recurrent, or progressive disease. The study also showed that there was reduced need for health service resources with improvement in QOL of patient as well as for caregivers.²¹

Many barriers exist in the real-world practices to integrate and coordinate both services into cancer care service lines. It is important to recognize those barriers and implement strategies to overcome them.

One of the obstacles is that rehabilitation professionals perceived lack of experience in caring medically complex cancer patients and lack of knowledge in the development of new technologies that have been rapidly evolving and have significant impacts on the diagnosis of symptom burden and associated impairments.²² On the other hand, oncology team, including those in palliative care, may not understand the many different ways rehabilitation team can help for these patients and may not have experience in screening these patients for their rehabilitation needs.²³ In the US, there are still challenges to expand the service of palliative care, such as physician resistance, unrealistic expectations from patients and families, lack of education and workforce, and issues exist in society awareness, government policy and financial reimbursement.

Currently, there is no single universally recognized model that is "one size fit all" regarding the coordinate care setting up. Improving integrative services demand a comprehensive strategy from medical institutes' inputs, government policy support, insurance reimbursement as well as the participation of advocacy organizations. More interdisciplinary collaboration on various practice settings, such as community base practice or home care service model needs to be tested before translating the pilot practice data into the clinical care system. The multiple specialties collaboration is needed in order to foster meaningful change in patient care models. Advocacy initiatives like the Patient Quality of Life Coalition in US²⁴ that bring together stakeholders across disciplines provide a helpful coordinating infrastructure and framework to help ad-

vance of these opportunities. There are many impacts assessment project ongoing currently in various regional settings²⁵⁻²⁷ in order to support healthcare reform and policy amendments.

As for Chinese medical society, the concepts of those two services are relatively new not only for medical professionals but also for publics to recognize and accept. There are much more barriers to incorporate these two services in the current Chinese healthcare delivery system. Chinese physicians not only face implementation obstacles at institutional level, the lack of trained professionals, misunderstanding from professionals and rejections from publics, but also challenged by lack of support from government for policy and finance aspects. With China current health policy debates, the major impact is to tie with the fiscal budget reimbursement. In this business sector with extremely narrow profit margins or sole dependence of government reimbursement or charity support for both services, scanty fiscal support could worsen the already existing access problems for many patients.

One of feasible approach is to initiate multiple pilot programs in various regions or clinic settings to identify the opportunities and the challenges in integrating two services into the current health care structures. The health economic data from those pilot programs shall present to the decision-making groups in government, help to reevaluate health economic policy and to reform the national health care budget. Only with appropriate revision of medical service fees for cancer rehabilitation and palliative care, Chinese medical society may further propel interest in these topics and reforms.

From clinic professional level, the emerging movements of professional organizations in China have raised the awareness of improving quality of life in cancer patients and provided entry level knowledge base training for oncologists. These efforts will increase awareness of professionals screening and identifying the issues such as disease burden and treatment related impairments in oncology patients. There is an urgent need for Chinese oncology society to implement appropriate training programs for professionals and enable oncologists to screen patients appropriately. Timely use of screening protocol is a way to improve the care coordination. Screening can begin at the time of diagnosis and continue throughout treatment and survivorship. Ideally, with the baseline and follow up assessments, the oncology team can proac-

tively identify needs and help appropriate referrals to rehabilitation and palliative care services. This kind of screen protocol has been implemented for breast cancer population with good outcomes in US. The goals of screening are to capture symptoms earlier, possibly reducing symptom burden and improve outcomes. Ultimately, oncologists can use the assessments to recommend for rehabilitation services and palliative caregiver at the moment. All those efforts should be considered to integrate into a patient's survivorship care plan.²⁸

There is a proven market for these two services, but growth is limited by multilayer problems in China. One of the issues is lack of qualified rehabilitation and palliative physicians, therapists, nurses to provide services. Currently, China has large gaps even for the entry level training in the two specialties. The standardized, structured educational opportunities and credentialing in program, such as residencies and certification, shall be developed at national level for cancer rehabilitation medicine and palliative medicine.

With the challenging goals of lowering healthcare costs while improving patient outcomes and satisfaction with care in global healthcare environment, the potential synergism of integrating rehabilitation and palliative care services in oncology practice will require intensification of interdisciplinary dialogue. Nevertheless, more evidence-based researches and cost-benefit health economic researches are also urgently needed to provide data support for medical resource allocation and appropriate service fee revision. From government health policy perspective, public policies shall be reevaluated to address the regulation reform of payment and reimbursement, modernization of legislation for access and referrals to these two services, institutional support of education for key stakeholders, and to increase funding for support of rehabilitation and palliative care team early involvement in the cancer patient care plans.

Conflict of interests statement

The author has no conflict of interests disclosed.

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