Research Progress on the Application of “Internet + Continuous Nursing” in Tumor Rehabilitation

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Abstract

With the transformation of the biomedical model, the treatment of cancer patients is not only clinical cure, patients need comprehensive rehabilitation to meet the needs of daily life and improve the quality of life, and continuity of care is an important way to implement the concept of cancer rehabilitation. With the development of the information age, "Internet +" medical treatment has also ushered in comprehensive development. Driven by the national macro policy, "Internet + nursing service" mode has been gradually widely carried out in the field of cancer, and has also made certain achievements. Therefore, this study summarizes the application status of the "Internet +" in nursing work, in-depth discussion of the "Internet + continuity of care" in the specific practice of cancer rehabilitation patients, and analyzes the problems existing in the practice process, so as to construct the future "Internet + continuity of care" platform for cancer rehabilitation patients from the nurse, hospital, the country three levels of outlook in order to provide reference for the comprehensive rehabilitation of cancer patients in the future.

Keywords

"Internet +", Continuity of care, Tumor Rehabilitation

According to the global cancer statistics report, there were 19.3 million new cancer cases and nearly 10 million cancer deaths worldwide in 2020 [1], and tumors have seriously threatened human health and social progress. With the extension of survival time, the service mode based on clinical treatment can no longer fully meet the medical care needs of tumor patients, and the concept of rehabilitation is gradually deepening. Tumor rehabilitation is to mobilize the enthusiasm of doctors, patients, families and society, improve the quality of life, and help patients return to society as soon as possible [2]. The main problems faced by cancer patients in the process of rehabilitation are a series of problems such as the recurrence of the disease, the trouble of symptoms, the interruption and discontinuity of various medical care and medical information [3]. And continuous nursing is a series of nursing activities designed to ensure that the nursing services received by patients have coordination and continuity when transferring between different health care places or different levels of health care institutions [4]. In the implementation process of continuous nursing, the network platform as an intermediary can not only maximize the use of resources, but also has unique advantages, such as avoiding repeated rush of patients and reducing the economic burden [5]. In recent years, the state has successively issued relevant policies to support the development of "Internet + Nursing service" [6, 7]. Therefore, this study summarizes the practice methods and existing problems of "Internet + continuous nursing" in tumor rehabilitation patients, in order to provide references for the construction of "Internet + rehabilitation nursing" platform for tumor patients in the future.
1. Overview of the application of "Internet +" in nursing work

1.1 Overview in China

"Internet + nursing service" is the main way for medical institutions to extend nursing services to communities and families. Its mode is mainly "patients apply online and nurses provide offline services", relying on the Internet information technology platform [8]. Yang et al. innovated and practiced the out of hospital continuing care based on the Internet, and provided paid on-site nursing services such as wound care and PICC catheter care for discharged patients through the online nurse appointment mode under the WeChat official account, fully mobilized the human resources of primary medical institutions, and greatly met the needs of patients' home continuing care [9]. Sun et al. built an Internet online nursing consulting service platform during the epidemic, including 14 consulting projects such as chronic disease nursing and maternal and infant nursing. Patients applied online, and specialized nurses provided nursing consulting services. The results showed that carrying out Internet nursing consulting services reduced unnecessary mobility, met the needs of all kinds of people for out of hospital care, and improved the professional value of nursing staff [10]. Lu et al. combined the health needs of discharged patients and the professional ability of clinical nurses, developed a home health care information management platform, and set up a location tracking, one button alarm system, etc. to ensure the safety of nurses. The use of the platform showed that the safety of nurses was not threatened, and patients had no complaints and adverse events [11].

1.2 Overview of foreign countries

The disease management model based on "Internet +" has been widely applied to a variety of chronic diseases, including diabetes, hypertension, obesity, insomnia, etc. [12]. Semple designed a mobile application is mainly for patients undergoing breast reconstruction or anterior cruciate ligament repair surgery under orthopedic arthroscopy. Patients use their mobile phones to fill in the quality recovery scale every day, and take photos of the surgical site and upload them in the first 30 days after surgery. The competent doctor checks the data entered by the patient online and gives treatment opinions. The results confirm that it is feasible to use mobile apps to monitor the rehabilitation quality of patients after home surgery, and it can also be accepted by patients and surgeons [13]. Schink et al. built the COVID-19 nursing staff cockpit (C19CC), which is a combination of applications and Web to prepare COVID-19 patients for pre-screening and visiting in a non-contact way in the outpatient department, and implement remote monitoring of patients in the ward. For patients with chronic diseases during the COVID-19 epidemic, especially cancer patients, their care can be supported through real-time electronic communication between patients and their doctors, including telehealth, remote patient monitoring, and secure communication between clinicians and patients to minimize the risk of infection [14].

In conclusion, the application of "Internet +" in nursing work is mainly to provide continuous nursing services after discharge, and the combination of online and offline services has achieved good results, especially during the epidemic period, "Internet plus nursing services" effectively avoided the occurrence of infection.

2. Practice status of "Internet + continuing nursing" for cancer rehabilitation patients

The traditional continuous nursing methods for tumor rehabilitation patients mostly use telephone, outpatient interview, home visit and other methods to understand their current status, and carry out lifestyle guidance, medication reminders, psychological counseling, follow-up reminders and so on. Although there are certain effects, the cost is high and the follow-up rate is low. In order to adapt to the rapid development of the times, network follow-up has shown unique advantages, with the advantages of timeliness and strong interaction [15]. The practice methods of "Internet + continuing care" for tumor rehabilitation patients mainly include the following:

2.1 WeChat follow-up

2.1.1 WeChat group

As the most widely used social tool, WeChat has a huge user base in the field of mobile applications [16]. Yu et al. established "prostate disease rehabilitation follow-up" and "family psychological support for prostate cancer patients" WeChat groups, which were applied to patients after laparoscopic radical prostatectomy, and achieved effective communication between patients and medical staff, which helped to improve patients' urinary tract symptoms after discharge, improve treatment compliance and postoperative quality of life [17]. Liang et al. established a WeChat group for continuing care of patients with endometrial cancer. When patients were discharged, nurses re-
leased discharge guidance plans in the group, conducted health education face-to-face training, and made videos, which were pushed to the WeChat group, where they could answer questions about diseases, provide psychological guidance, and record follow-up content. It can effectively reduce the incidence of complications and improve the quality of life of patients [18].

2.1.2 WeChat mini programs
Relying on WeChat, WeChat mini programs have the advantages of short development cycle, low difficulty, convenient maintenance, and easy personalized customization [19]. Under the guidance of the guided nursing mode, Hu et al. developed a WeChat applet for family nutrition support management of patients with gastric cancer after surgery. When the patients were discharged from the hospital, they developed an individualized nutrition support plan based on the consultation results of the nutrition department. After discharge, they monitored whether the patients completed family high nutrition support through the WeChat applet and gave timely guidance, which effectively improved the nutritional status and quality of life of patients with gastric cancer after home rehabilitation [20].

2.1.3 WeChat public platform
The new media situation has impacted on the traditional publicity methods of the hospital. Taking WeChat public platform as the carrier, online health education has adapted to the needs of cultural communication and achieved accuracy and efficiency [21]. Yang et al. implemented continuous nursing for patients with breast cancer after implantation into the infusion port by establishing a WeChat official account of "Northeast Sichuan breast surgery center", which improved the satisfaction of patients with life. It has greatly improved the relationship between doctors and patients [22]. Peng established a WeChat public platform called "Hello, stomach", taught patients to use WeChat to browse the public account to push, and pushed a link of postoperative rehabilitation suggestions every day after discharge, popularized gastric cancer knowledge, encouraged patients to communicate and interact within the group, and regularly pushed out continuous nursing interventions such as interactive lottery games, which improved the hope level and quality of life of patients [23].

2.2 App follow-up
Mobile medical APP is a medical and health application, which is the product of the combination of mobile medical technology and mobile terminal system [24]. Chen et al. chose "almond doctor" WeChat patient and doctor APP software as mobile education software. Nurses carried out home continuous nursing for patients with laryngeal cancer after surgery through this mobile education platform. The results showed that it was helpful to improve patients' treatment compliance, improve negative emotions, improve health behaviors, and improve the quality of life after surgery [25]. Hanna et al. designed the Mypace mobile APP to carry out early dietary intervention for patients with upper gastrointestinal cancer (esophagus, stomach and pancreas). Patients and dietitians can interact in real time through the APP, so as to implement a personalized, symptom oriented nutritional behavior management plan. In addition, the APP automatically reminds and encourages patients to monitor themselves every day. The results proved the feasibility and effectiveness of Mypace APP in nutritional management of patients with family cancer treatment [26].

2.3 Cloud follow-up platform
The cloud follow-up management platform is a remote monitoring management mode, which uses the combination of network technology and information technology to build a new follow-up mode to achieve extended services outside the hospital [27]. Ling et al. carried out nursing follow-up for patients with advanced gastric cancer pain through the cloud follow-up management platform, and timely tracked and fed back the patients' pain status, psychological status, and living conditions, and dynamically adjusted the continuity of care plan. The medication compliance and pain of patients were improved, and the focus was reduced Anxiety and depression symptoms thus improve the quality of life [28]. Shan et al. carried out cloud follow-up management for patients with colorectal cancer stoma. Stoma therapists carried out part-time follow-up and online cloud triage. Ward nursing experts were responsible for online health education. Head nurses, attending physicians, dietitians and others were responsible for online consultation and Q & A. Hierarchical management was implemented for patients, which reduced the loss to follow-up rate and improved the work efficiency of specialist nurses. At the same time, online forms maintained patient privacy and improved patient satisfaction [29].
2.4 "Internet + "multiple linkage mode

Multiple linkage refers to the continuous nursing integrated care mode constructed through the information integration among hospitals, homes, communities and elderly care institutions, so as to extend the nursing service field and realize the whole person whole process care mode [30]. Yao et al. realized home extension by building PICC home maintenance platform and community extension by establishing regional network and establishing pair management with community hospitals. The results showed that this mode reduced the incidence of catheter-related complications and maintenance costs in children with malignant tumors, and improved the catheter maintenance compliance of children and parents' satisfaction [31]. Sun et al. implemented hospital community family ternary linkage continuous care for patients with lung cancer after surgery. During hospitalization, they gave centralized training lectures to patients and their families. After discharge, the nurse in charge transferred the patient's hospitalization data to the health service station, and established a WeChat communication platform. During home stay, the hospital nurses and community health center nurses jointly answered the questions raised by patients and their families. Through the Internet sharing information and synchronous communication, the stress response of patients was reduced, the self-efficacy of patients was improved, and high-quality nursing was achieved [32].

To sum up, the practice of "Internet + continuity nursing" for cancer rehabilitation patients includes WeChat follow-up, APP follow-up, cloud follow-up platform and multiple linkage mode. The specific practice is mainly to set up a continuity care team, cooperate with information or software companies, develop the corresponding "Internet +" platform, department personnel are responsible for information push and online question answering, etc. And continuity of care has been carried out during the patient's hospitalization, so that patients participate in continuity of care in advance. The nursing contents mainly start from the aspects of routine nursing such as medication guidance, dietary guidance, psychological counseling, complications observation and corresponding pipeline nursing. The evaluation indexes mainly involve the following aspects: improving the quality of life level, reducing the incidence of postoperative complications, improving treatment compliance, improving psychological state, improving doctor-patient relationship, improving nursing satisfaction, etc., which are mostly outcome evaluation indexes.

3. Problems in the practice of "Internet + continuous nursing"

3.1 Security issues

3.1.1 Information safety

In the era of big data, information leakage has become an indisputable fact. The current "Internet +" platform is mostly developed jointly by hospitals and information companies, which may have the problem of excessive commercialization. How to protect patient privacy in the future is not only our professional ethics but also the requirement of national law.

3.1.2 Patient safety

At present, there is no unified standard in China on how to ensure the authenticity of registered nurses, how to ensure the standardization of nursing operation, how to ensure the scientificity of nursing content, how to ensure the rationality of charging, whether the qualification of nurses can ensure the service ability, so as to ensure the safety of patients.

3.1.3 Nurse safety

The network is like a double-edged sword, providing us with convenience but also hidden dangers. The authenticity of the patient's registration information, whether there is any concealment of infectious diseases, and the treatment of medical waste outside the hospital are all problems faced when providing home care at home. Moreover, most nurse practitioners are women. Sexual groups, how to ensure the personal safety of nurses is the problem that must be solved in the next step to expand the multi-point implementation business.

3.2 Standardization issues

3.2.1 Standardization of nursing language

As a discipline communication tool, China still lacks a unified nursing standardized language system in line with international standards, which can not play a role in standardizing practice, quantifying services, sharing information, etc., hindering the cross regional and cross time communication and cooperation of nursing workers [33].
3.2.2 Standardization of nursing services

The construction of the "Internet + continuity of care" platform is still under exploration and research. Hospitals mostly cooperate with information companies to develop and design independently, and there is no unified standard in China. The continuity nursing team is mostly nurse led, less multidisciplinary collaboration, and less convergence with community health care personnel; As for the content of continuous nursing, it is mostly provided by researchers according to clinical experience, less involved in the development of continuous nursing plan guided by the needs of patients, and the scientificity and rationality of the content are less reviewed by authoritative nursing experts; Most of them provide services free of charge, which is difficult to stimulate the enthusiasm of nursing staff.

3.2.3 Standardization of quality evaluation

The evaluation of "Internet + continuing care" is mostly outcome evaluation indicators, less structural evaluation indicators and process evaluation indicators, less evaluation of patients' acceptance and reliability of Internet-based follow-up, and no effective communication and feedback mechanism.

3.3 Economic issues

The pilot work of "Internet + nursing service" was first carried out in Jiangsu Province, Guangdong Province and other economically developed areas, with beneficial exploration and certain results achieved. However, the development situation of "Internet + nursing service" in less economically developed areas such as northern China is not optimistic. The existing platforms in China, such as U Care, Home Care, Gold Nurse, etc., have different charging standards and some projects have high charging problems. Moreover, in some regions, the project pricing is implemented by classification, which leads to conflicts between the original medical insurance payment system and the new Internet service payment [34].

4. Summary

The national policy points out that "Internet + nursing service" should be organically combined with continuous nursing and other services to provide personalized and differentiated nursing services for the masses [7]. Patients have needs and the country has policies. In the future, we are facing both opportunities and challenges. In clinical practice, nursing workers should continue to learn and accelerate the development of nursing standardized language to reflect the unique characteristics of our nursing discipline; We should actively act, boldly innovate, and combine continuous nursing with specialized nursing and evidence-based nursing according to the disease particularity of tumor patients, so as to explore the practice of diversified continuous nursing mode; According to local conditions, explore the "Internet + nursing service" suitable for local development mode.

The hospital should strengthen the construction of tumor specialist nurses, and do a good job in the selection, training and assessment links to ensure that they have the service ability to meet the needs of patients; Efforts should be made to promote the establishment of a regionalized and gridded multi linkage home care service model, promote the construction of hierarchical diagnosis and treatment system, and then explore the development path of localized continuous nursing.

The relevant functional departments of the state should pay more attention to "Internet + nursing service", improve the access threshold, refine the service system and charging standards, expand the coverage of medical insurance, strengthen market supervision, strengthen publicity, and study and formulate nursing service industry standards matching the new service environment as soon as possible; Learn from the experience and lessons of relevant foreign research and strengthen diversification Scientific research cooperation and exchange to promote the scientific and high-quality development of "Internet + nursing service" in China.

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