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# *Theoretical and Practical Challenges of Internet Medical Treatment in the Treatment of Chronic Diseases*

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***Abstract:*** In recent years, with the improvement of medical technology and the gradual improvement of information technology, the hospital's Internet medical model has changed. In the field of treating chronic diseases, Internet medical uses hospital outlets and mobile terminals to connect to the Internet medical cloud, and set up an Internet medical chronic disease diagnosis and treatment department to establish the management of chronic diseases. The special management process and the construction of a special operation and control system for the management of chronic diseases in Internet hospitals. Through big data analysis of chronic diseases and hypertension, the number of people who change health files is large, accounting for a high proportion. Medical structures at all levels realize the common interconnection of data, thus effectively improving the efficiency of early detection of chronic diseases, realizing health treatment and early treatment, giving full play to the role of medical and health resources, and providing a new direction for the treatment of chronic diseases.

## 1. Introduction

With the aging of the population and the development of economic globalization and the increase of risk factors for chronic diseases, the number of patients with chronic diseases is increasing year by year. Chronic non-communicable disease is a common chronic non-communicable disease, with an incidence rate of as high as 89.48%. Urban-rural coordination is a major measure to improve the physical quality of the people [1]. In China, there are a large number of patients with chronic diseases, but in the community, their health management is very complicated, the workload is also very large, and the medical strength at the grassroots level is very weak. There is an urgent need to explore new and efficient methods for the prevention and treatment of chronic diseases. Europe, the United States and other countries are highly concerned about the medical and health field. Research shows that information technologies such as cloud computing, big data, Internet of Things, mobile Internet and artificial intelligence are actively used to support medical and health development [2]. Applying information technology to all aspects of community health management can improve its governance efficiency.

## 2. Internet Medical + Chronic Disease Model and Service Status

### 2.1. Take the Lead in Setting up a Chronic Disease Management Center.

At present, China has established a relatively complete "Internet +" model, and has formulated standardized management indicators for hypertension, diabetes and other diseases. Beijing, Shanghai, Xiamen, Wuxi and other regions have explored the "Internet +" online medical treatment model according to the actual situation. Professor Ning Guang is a member of the Endocrinology and Metabolism Committee of the Chinese Medical Association. The staff will implement the standardized management of diabetes on the "MMC Butler" APP to realize the functions of patient health assessment, appointment follow-up, inquiry of physical examination results and family information [3]. The China Hypertension Federation launched the Intelligent Blood Pressure Diagnostic Center (iHEC) for the first time in 2018. Its operation and management are the same as MMC, but most of the data are completed on workstations. Patients can upload blood pressure through WeChat, consult online, browse relevant knowledge and disease information, and operate. It's easier and faster to get up.

### 2.2. Multi-mode Services To Promote the Diagnosis and Treatment of chronic Diseases

Shanghai "1+1+1" mode, Xiamen "three divisions co-management" mode, MMC "1+X" mode, Peking University First Hospital diabetes joint care mode, Sichuan University Xuehua West Hospital diabetes hierarchical management model, Southeast University First Affiliated Hospital diabetes and complications screening prevention management model, etc [4], use the Internet, Internet of Things, wearable devices, etc. to realize appointment and follow-up, online consultation, health education, electronic health files, inspection reports, disease risk assessment, diet exercise management, etc. Multi-disciplinary chronic disease management services such as management, disease monitoring, online payment, online drug purchase, remote consultation, two-way referral, examination and admission appointment greatly save patients' medical treatment time and improve the medical experience, but the "digital divide" may overcome most elderly patients with chronic diseases.

### 2.3. Internet Medical Methods are Diversified

The two key ways of online medicine are PCs and mobile phones. Users on PCs are to obtain health information. Platforms for emotional support, social communication or purchase of medical supplies: such as WellDoc, eHealth, micromedicine, sugar nurse and other mobile APP software and WeChat applet. At the same time, there are also P°C and the mobile terminal [5]. The function of the PC terminal is to establish health files, record information, analyze data, work reminders, etc. The mobile terminal is to check the patient's condition and answer online. For elderly patients with chronic diseases, the tracking method is still mainly through telephone clinics, home visits and special lectures. On computers, most of the elderly are from overseas, and they will get help from their peers through the Internet, social networks and other means [6]. American scholar Lilchman and others in Japan pointed out that this model can increase the knowledge of self-care for the elderly. It is of great significance for the treatment of diabetes to provide emotional help to diabetic patients. The elderly in the family focus on actions. Li Jia implemented "Internet+" chronic disease management for 81 elderly hypertensive patients through WeChat groups and official accounts. After 6 months, her blood pressure, anxiety and depression scores decreased significantly, and her drug compliance, hypertension-related knowledge and quality of life scores were significantly better than that of the traditional treatment group. SUN et al. used mobile phone mHealh to follow up 47

patients with type 2 diabetes for 6 months, and the results showed that the post-meal blood sugar and HbAle concentration of the two groups of patients decreased significantly (10.62 mma/L, 6.84% vs.7.22%). Shen Xiaoyu and eight other elderly patients with type 2 diabetes are carried out through mobile phones and intelligent monitoring devices.After management, the results show that it takes 33 hours for the elderly to master the entire monitoring equipment, and 11.67% of the data is lost during the 30-day monitoring period. Nine diabetics in West China Hospital of Sichuan University conducted a clinical study on the application of APP for 6 months. The results show that although online medicine can facilitate the follow-up of patients, prescriptions for chronic diseases and home care, and reduce the cost of patients' medical treatment, there are still many elderly people who cannot operate independently and ignore it. Some key data, such as hyperglycemia, hypoglycemia, etc., need to be accompanied by medical institutions in time. However, research in the field of online medicine is still rare, and compared with other health care apps, it is easier for elderly users to master the easy-to-use WeChat.

## 3. Information and Methods

### 3.1. General Information

From September 2017 to September 2019, I downloaded the Internet Hospital APP and registered 3,562 times, and the number of nursing consultations for chronic disease management was 776, and 317 patients were included in the management of chronic diseases, including 186 cases for men and 131 cases for women: age 43-75 (6 1.62 8.56 years old: 102 cases of hypertension, 56 cases of coronary heart disease, 85 cases of diabetes, 47 cases of stroke and 27 cases of tumors.

### 3.2. Method

Through the purpose sampling, 8 nursing staff and 3 medical personnel working in the geriatric department and chronic disease department were selected based on the principle of interview data saturation. The experts interviewed 317 patients with chronic diseases, and the interview and telephone communication were semi-structured for 30 minutes. Eleven medical experts from 3 secondary hospitals have been engaged in the management of geriatric and chronic disease departments for more than 10 years, including 6 geriatric nurses, 2 senior geriatric nurses and 3 chronic disease experts. 10 to 14 years of working years 4 years, 15 to 19 years of working years 3 years, 20 to 25 years of working years 4 years, are deputy senior titles. 1 Expert semi-structured interview outline: Which specialties do you think are suitable for the management of chronic diseases in Internet hospitals? What are the key points and difficulties in the management of chronic diseases? What aspects can affect and evaluate the quality of chronic disease management? 2 Outline of semi-structured interviews with patients with chronic diseases: What problems are you most worried about after the illness? What problems do you want medical staff to solve for you? Do you know which good lifestyles in life can delay the progress of the disease? According to the interview results, combined with the actual situation of the hospital, the first batch of Internet hospital chronic disease management specialty categories, chronic disease management content and management ideas are determined. Test statistics of all patients' physical indicators before and after receiving Internet management, including BP (systolic blood pressure), DBP (diastolic blood pressure), TG (triacylglycerin), LDL-C (low-density lipoprotein cholesterol), HDL-C (high-density lipoprotein cholesterol), TC (total cholesterol) ), FPG (fasting blood glucose), HbA1c (glycated hemoglobin).

### 3.3. Statistical Methods

SPSS13.0 is used to analyze and process the data collected by the research object, and the measurement data adopts ( $\bar{x}$ Shi s) indicates that the counting data is expressed in %, and the data is checked with x2: P>0.05 is the difference, which has no statistical significance.

## 4. Results

### 4.1. Reduce the Burden on Patients' Families

The comparison of the burden of patients' families before and after the specialized management of online hospitals is shown in Table 1.

Table 1: Comparison of the burden of patients' families before and after the specialist management of Internet hospitals

| Project | Spend time | Accompanying personnel | Number of hospitalizations in two years | Two-year medical expenses |
|---|---|---|---|---|
| Before management | 3.42±1.05 | 1.50±0.64 | 1.36±0.53 | 0.82±0.33 |
| After management | 0.35±0.12 | 0.47±0.16 | 0.32±0.08 | 0.35±0.09 |
| T | 20.947 | 11.259 | 13.992 | 9.908 |
| Parking lot | 0.000 | 0.000 | 0.000 | 0.000 |

### 4.2. The Level of Various Indicators before and after Patients' Acceptance of the Internet

A comparison of the level of patient indicators after the implementation of health education is shown in Table 2.

Table 2: Comparison of the level of patients' indicators after the implementation of health education

| Target | 2017 | 2019 |
|---|---|---|
| SBP (mmHg) | 145.02±12.25 | 140.28±11.01 |
| DBP (mmHg) | 84.14±8.27 | 83.53 ±8.68 |
| TG (mmol/L) | 1.68 taxi 0.59 | 1. 42 taxi 0.54 |
| LDL-C (mmol/L) | 3.34 taxi 1.10 | 2. 98±0.78 |
| HDL-C(mmol/L) | 1.10 taxi 0.28 | 1.38±0.35 |
| FPG (mmol/L) | 6.82±0.98 | 6.71±0.89 |
| HbAlc (%) | 5.86±0.52 | 5.67±0.48 |

## 5. Discussion

### 5.1. Build a New Model for Health Management of Chronic Diseases

The application and exploration of Internet + new technologies in community health management of chronic diseases has realized case monitoring reports, accurate sorting and follow-up management, daily health monitoring, chronic disease risk assessment and intervention, sharing and access to family doctor contracted referral data, and built hospitals, community health service centers, disease prevention and control centers, etc. A new system and new model of integrated health management for the prevention and control of chronic diseases between units.

### 5.2. Effectively Improve the Early Detection Rate of Chronic Diseases

Through the automatic reporting system of hypertension and diabetes from 2016 to 2020, the urban area of Yichang City intelligently discovered and established 15,934 health files of residents of hypertensive patients through big data, with an average of 3,186 people per year, which is more suitable for screening hypertension patients than the traditional way of free diagnosis and household entry in the community of the jurisdiction. Big data intelligent system is timelier, accurate, and convenient, saving manpower and material resources.

### 5.3. Effectively Improve the Management and Treatment Rate of Early Standardized Treatment of Chronic Diseases

Through the intelligent sorting system, the number of newly discovered hypertensive patients in Yichang City from 2016 to 2020 increased from 54,613 at the end of 2015 to 71,648, of which the big data intelligent sorting system played a significant role, accounting for 93.54%. Through the contracted service management information system, intelligent follow-up and auxiliary diagnosis and treatment system, the early management and early treatment of chronic diseases have been effectively promoted. The standardized management rate and blood pressure control rate of patients with hypertension are increasing year by year.

### 5.4. Accelerate the Construction, Operation and Promotion of the Internet Medical Platform for the Elderly

To truly realize intelligent medical care for the elderly, we must first increase the research and development and configuration of information technology, apply remote monitoring technology, sensing technology, artificial intelligence technology, etc. to Internet medical services, and continuously optimize the design of software and products according to the special needs of the elderly, such as moderate font size, sudden Display key operation buttons, simplify the operation process, add voice input, click reading, magnifying glass and other functions, synchronously develop WeChat applet, etc., to improve the user experience. Secondly, it is necessary to expand the publicity channels and methods of Internet medical care. In addition to the traditional distribution of brochures and posters, you can also play videos of the process of Internet medical treatment in outpatient clinics, set up online medical virtual experience centers, etc., and on places or platforms other than medical institutions (such as communities, elderly care institutions, health Information media, etc.) to carry out publicity.

### 5.5. Give Full Play to the Functions of Family and Social Support Systems to Realize the Integration and Care of Chronic Diseases

The use of the Internet can effectively alleviate the loneliness of the elderly, but they need more the company of their children, who cannot be accompanied by the elderly due to work, personal family and other reasons. Internet + chronic disease management can better build a father. It is a bridge of communication between mother and children, and children can also take care of their parents' health remotely, such as making an appointment for a doctor, paying online, uploading disease data collected at home, etc. This is also the main form of Internet + chronic disease management for the elderly. However, at present, there is only one patient account for all chronic disease management systems. After the children log in to the system remotely, the elderly cannot log in at the same time. Therefore, it is necessary to build a patient family management group with patients as the main body, family members or main caregivers as the object, and medical staff as the

joint participation of medical staff to solve the problem of poor communication and information transmission errors. Problems such as information loss can effectively play the positive role of family support in the management of chronic diseases. At the same time, this study draws on the four major comprehensive care models in the UK, relying on urban medical groups, urban community alliances, county medical unions, grassroots and community health institutions. Elderly care service institutions have established information service sharing and security mechanisms, vigorously promote family doctors and nurses to provide home services, and better provide home medical services for elderly patients with chronic diseases.

## 6. Conclusion

By sorting out the current situation of nursing care for elderly patients with chronic diseases, it is found that more and more attention is paid to the nursing of elderly patients with chronic diseases at home and abroad, especially early detection and early treatment of chronic diseases. Based on the background of the times, Internet medical care is gradually applied to elderly patients with chronic diseases, mainly including the continuous care of conventional communication software, mobile health application APP, network platform, hospital-community-family ternary linkage patient management network, and artificial intelligence technology application to make up for the shortage of medical resources., accelerate the construction of the platform and the promotion of platform operation. However, Internet medical care is still in the stage of development. In the future, it is necessary to continuously explore and improve, achieve better integration, form a "multi-level, diversified and high-quality" Internet medical care model, and improve the quality of care for elderly patients with chronic diseases. I believe that with the continuous development of information technology in the future, the hospital will also establish a mutual. The network diagnosis and treatment system will be further improved, and its application scope will no longer be limited to the management of chronic diseases, but will also be applied in the initial diagnosis and health services of other diseases.

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