

Research Progress of Oral Health Education for Elderly Diabetic Patients

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ABSTRACT

Periodontal disease is one of the common complications of elderly diabetes. With the aging of the population, more and more elderly diabetes patients, and the demand of oral health education for elderly diabetes patients is growing. This paper reviews the oral health education of elderly diabetic patients from the content and methods of rdized oral health education program for elderly diabetic patients.oral health education, aiming to provide reference for the construction of standa.

Keywords: Oral Health; Diabetes mellitus; Aged; Review

Introduction

Diabetes is a group of metabolic diseases characterized by increased chronic blood sugar levels. Studies [1] have shown that the prevalence of adults with diabetes in my country has reached 11.6%, and it continues to increase. In the world, our country has become the country with the largest number of diabetic patients. According to the results of a large-scale epidemiological survey from 2007 to 2008, the prevalence of diabetes in the elderly was 20.4%, which was 10 times that of the 20-30 year-old population, accounting for 38.1% of the total number of diabetes patients [2]. With the aging of our country's population, the number of elderly diabetes mellitus is increasing. Studies have also pointed out that the depth and breadth of health education content, educational activities, frequency of activities, and demand for middle-aged and elderly patients with diabetes and oral diseases in dental clinics have significantly increased [3]. However, there are few standardized oral education programs for elderly diabetic patients in China. For this reason, this article reviews the related research on the content and methods of oral health education for elderly diabetic patients, in order to provide a reference for constructing standardized oral health education programs for elderly diabetic patients. The summary is as follows.

Elderly diabetes, oral health and health education concepts

Elderly diabetes

At present, there is no clear definition of the specific age standard for elderly diabetes in clinical practice. In my country, elderly diabetes generally refers to diabetic patients over 60 years old, but in some countries in the world, elderly diabetes refers to diabetic patients over 65 years old [4]. From the first national diabetes survey to 2018, the number of elderly diabetic patients in my country has been increasing, and the rate of elderly diabetes has increased by 18 times. It is predicted that there will be 5016 million elderly diabetic patients in 2017, accounting for approximately the total number of diabetic patients 46% of them are already the mainstream group of diabetes in my country [5]. A study [6] pointed out that the elderly as the mainstream population of diabetes in my country is because with the increase of age, pancreatic β -cells degenerate, leading to changes in hormone levels and lowering of the basal metabolic rate in the body, leading to a decrease in insulin sensitivity.

Oral health

Oral health is one of the ten dimensions of health, which seriously affects people's quality of life [7]. The World Health Organization (WHO) defines oral health as: good oral hygiene, complete functions, and no oral diseases [8]. At present, the main problems of oral health of Chinese residents are poor oral hygiene, dental caries and periodontal disease. Long-term failure to pay attention to oral hygiene can cause bacteria to grow in the oral cavity, which may induce or aggravate some systemic diseases, such as diabetes, stroke, Alzheimer's disease, heart disease, etc, which are harmful to systemic health and affect the quality of life [9].

Health Education

Health education is through planned, organized, and systematic social education activities to promote people to adopt behaviors and lifestyles that are beneficial to health, eliminate or reduce risk factors that affect health, prevent diseases, promote health, and improve the quality of life [10]. Include oral health related content in health education to help patients consciously adopt behaviors and lifestyles that are beneficial to oral health in a planned, organized, and systematic manner.

Li Yanling[11] pointed out that elderly diabetes and oral health affect each other and promote each other. Oral health education for elderly diabetic patients is not only conducive to maintaining oral health, but also beneficial to blood sugar control in elderly diabetic patients.

Oral health education content

Knowledge-Faith-Action Education

Knowledge Education

Health education on diabetes and oral disease related knowledge for elderly diabetic patients can help elderly diabetic patients to correctly understand their condition, improve their awareness of protection, and improve their bad behaviors. The controlled study by Gong Deai [12] explained the etiology and prevention methods of periodontitis and diabetes for patients, and explained the relationship between the two and their effects. The results showed that the health knowledge awareness rate and on-time follow-up rate of patients in the observation group increased significantly, and the results were similar to those of Qi Fengwei [13]. A study [14] pointed out that elderly diabetic patients believe that they are knowledgeable in daily oral health care, but lack understanding of the seriousness of the relationship between diabetes and oral health. It can be seen that in the education of disease knowledge, nursing staff can explain to patients the etiology, clinical manifestations, prevention and treatment methods of diabetes and periodontitis, and the relationship between diabetes and periodontitis. Strengthen the explanation of the relationship between diabetes and oral health, and determine the focus according to different situations, so as to help patients correctly understand the oral problems of diabetes, enhance awareness of protection, and improve bad behaviors.

Belief Education

Diabetes is a lifelong disease, and the oral health behaviors of diabetic patients are also lifelong, and many precautions in health behaviors are not easy to adhere to and correct for the elderly. Therefore, it is necessary to strengthen the beliefs of elderly patients and enable them to develop oral health behaviors. Li Lan[15] pointed out that the spouse is the spiritual support and main caregiver of elderly patients. The spouse can improve the attitude of elderly patients towards diseases, mobilize family members to give patients supervision and care, so that patients have certain mental comfort and psychological support. Firm the patient's belief in improving their own behavior. In addition, Hu Yi[16] research pointed out that the treatment results of actual cases are easy for patients to build confidence in treatment, and actively face and cooperate with treatment. The research of Zhang Linghong [17] also proposes to summarize the past successful treatment cases, which can build the confidence of patients to overcome the disease. Research [18] shows that through communication, preaching, and learning from each other's experience can help patients strengthen their beliefs, improve bad living habits, and develop good oral behaviors. It can be seen that in addition to timely follow-up and communication by health educators to eliminate doubts and bad emotions, family members should also be encouraged to support and care, through successful cases or patient experience to help patients strengthen their beliefs and develop good oral health behaviors. Among them, the support and care of relatives of elderly living alone and widowed should be strengthened.

Behavior Education

Brush your teeth correctly

The most important, effective and easy-to-operate method and measure to remove dental plaque is brushing teeth[19]. Due to the influence of traditional concepts, middle-aged and elderly patients generally use the habitual see-saw brushing method, but this brushing method will cause damage to the dental tissues and gums, which will aggravate the degree of periodontal disease[20]. Therefore, it is necessary to instruct patients to understand the correct method of brushing teeth. Huang Xiujian[21] pointed out that the use of Pap brushing method is currently recognized as an effective method of brushing teeth, which is similar to the results of most studies at home and abroad. Chen Lin[22] pointed out that the systematic brushing method has a higher plaque removal rate than the Pap brush method, and it is easier to master. However, there is no research to point out the specific operation method of the systematic tooth brushing method, so the Pap brush method can be recommended as the tooth brushing method for oral health education. Studies have also suggested[19] that the Pap brushing method needs to be mastered comprehensively and familiarly by people who need to brush their teeth, and they can focus on brushing their teeth carefully and in place, so it has not been widely adopted. It can be seen that the Pap brushing method, as the currently recommended method of brushing teeth, has some

drawbacks. In the future, we can continue to study the effective, easy-to-master and adhere to brushing method for the diabetic oral cavity.

Domestic textbooks point out that healthy people can brush their teeth twice a day, and each brushing time lasts 3 minutes, but people with gum or periodontal disease should brush their teeth again after lunch[23]. Zhang Guanggeng[24] pointed out that patients with chronic gingivitis and chronic periodontitis can only achieve the effect of controlling periodontal plaque by brushing their teeth for 10 minutes each time. In a controlled study by Xu Ya[25], when conducting oral health education for elderly diabetic patients, they were instructed to brush their teeth twice a day, morning and evening, and each brushing time was no less than 3 minutes. The results showed that the periodontal health index of the experimental group was better than the control group. Most of the oral health studies of elderly diabetic patients in China are consistent with Xu Ya's research on the number and duration of tooth brushing. It can be seen that there are no clear regulations on the frequency and time of brushing teeth for elderly diabetic patients, and there is no horizontal comparison between the frequency and time of different brushing. However, individualized health education on brushing methods can be carried out according to whether the patient has gum or periodontal disease. Interventions can be implemented in this area to provide effective brushing standards for elderly diabetic patients.

At present, there are no toothbrushes specifically related to the oral health of senile diabetes. In the research of oral health care of senile diabetes, most of the researchers recommend that patients use soft toothbrushes. Wei Yunying[26] recommended the use of a health toothbrush with a small brush head, sanded hair, and soft hair. Li Huilan[19] found that electric toothbrushes have a higher plaque removal rate than ordinary toothbrushes, but they are particularly sensitive to teeth or gums and are not recommended for patients with severe periodontitis. It can be seen that elderly diabetic patients should first choose health-care toothbrushes with soft bristles, sanding bristles, and small brush heads. However, there is no horizontal comparison between ordinary health-care toothbrushes and electric health-care toothbrushes. There is still a lack of large randomized controlled studies on which toothbrush is better. At present, it can be recommended to use an electric health toothbrush or an ordinary health toothbrush according to the patient's oral health, consumption, and wrist flexibility.

Use of secondary oral care appliances

Brushing is the main method to remove plaque, but it can only remove about 70% of dental plaque[27], and the auxiliary use of dental floss or interdental brush is needed to completely remove dental plaque. Wang Lijuan [28] in a comparative study on wound rod floss and tape floss showed that both types of dental floss help to clean the adjacent tooth plaque, but the wound dental floss is more economical and clean. The study of Hao Chunbo[29] pointed out that dental floss is difficult to clean large teeth gaps, and patients report that they have cut their gums during the use of dental floss, so dental floss is not recommended. A study [30] pointed out that the interdental brush has been promoted as a routine and effective cleaning tool to maintain the periodontal health of elderly patients. Interdental brushes are recommended for elderly patients with serious periodontal problems such as large gaps and dentures. Another study [27] pointed out that when the interdental space is small and the recession of the gingival papilla is not obvious, the tool to eliminate adjacent plaque is to choose dental floss. On the contrary, the interdental brush is the first choice. It can be seen that dental floss and interdental brush have their own advantages and disadvantages. Interdental brushes can be recommended according to the patient's large interdental teeth, dentures or obvious gingival recession. On the contrary, it is more convenient and effective to use dental floss. In addition, it is recommended to use the winding type of dental floss. In order to avoid injury, it must be standardized and gentle.

Because the mouthwash contains special ingredients, it can not only physically remove large residues and secretions, but also regulate the distribution of oral flora and improve the oral environment. Tan Xiaojun [31]'s research pointed out that Compound Chlorhexidine Solution is widely used in oral care, and the clinical treatment effect is obvious, but there is a problem of inconsistency in the use of concentration. At present, there is no report on the oral care concentration of compound chlorhexidine solution in China. Nie Xuan [32] self-made traditional Chinese medicine mouthwash for the experimental group in the study, and its effect was better than compound chlorhexidine mouthwash. Huang Xiaojuan [33] research found that long-term use of gargle may cause imbalance of the oral flora. It can be seen that in addition to instructing patients on how to gargle correctly, they should also choose a suitable mouthwash according to the patient's oral health. Those with good oral conditions can choose clean water or dilute salt

water, and those with serious oral problems can choose medical mouthwashes, but not For long-term use, you can choose to use it alternately with Chinese and Western medicines to avoid drug resistance and flora imbalance. In addition, there is a lack of horizontal comparison between various medical mouthwashes, and there is still a lack of large-sample randomized controlled studies on which concentration is better.

Oral health care in traditional medicine

Behavioral health

Traditional oral health care methods have been mentioned many times in the research on oral care of elderly diabetic patients in China. Research by Li Jiayu[34] pointed out that the oral health care methods of traditional medicine advocate tapping teeth and swallowing body fluid and rubbing lip massage. Wei Yunying[26] pointed out that elderly diabetic patients are prone to dry mouth, rubbing lip massage can improve the blood circulation of the mouth and gums, strengthen the teeth, and prevent oral diseases. A study by Mao Qiuting[20] pointed out that elderly diabetic patients are prone to tooth loss due to more serious periodontal diseases. Knocking can strengthen the teeth, and swallowing fluid can increase blood circulation in the gums and reduce periodontal tissue inflammation. It can be seen that tapping teeth and swallowing body fluid and rubbing lip massage are traditional medical oral health methods, which have a good effect on preventing oral diseases, but the effect is slow, and patients need to be persistent. Because each patient's situation is different, it is recommended to choose the appropriate method, frequency and intensity according to each patient's special situation.

Diet and health care

Develop good eating habits play an important role in the prevention of patients' oral diseases. Mao Qiuting[20] researched that drinking green tea in moderation, because green tea contains natural catechins and high fluoride can inhibit oral bacteria, gargle with tea can protect teeth and clean the mouth, can prevent and treat periodontal disease. Wei Yunying [26] pointed out that on the basis of a diabetic diet, pay attention to the temperature of the diet, drink more water after meals, and drink more than 2500mL per day. It can be seen that in the diet education for oral health of elderly diabetic patients, it is necessary to adhere to the principles of diabetic diet and balanced diet, and at the same time pay attention to moderate food temperature, drink plenty of water, and drink tea appropriately to prevent oral diseases.

Oral Health Education Methods

A study [35] pointed out that the way of oral health education for elderly diabetic patients is relatively single, and there is an urgent need for multiple forms and multiple ways of oral health education for elderly diabetic patients to reduce the incidence of oral diseases.

Offline Health Education Methods

Traditional offline health education methods mainly include health education teams, lectures, knowledge manuals, regular return visits, group learning exchanges, etc. Most studies use pictures, models, and short videos according to the characteristics of the elderly when educating elderly diabetic patients on oral health. In addition, Wu Zizhen[36] also pointed out that the use of interesting questions and answers in knowledge lectures for elderly diabetic patients is conducive to the understanding of patients' knowledge. Li Ying[37]'s research pointed out that after the patient completes the simulation experience by wearing the diabetes complication simulation experience education tool, health education is carried out, which is more conducive to the patient's understanding of disease knowledge than traditional oral, picture, text and group health education and changes in bad behavior. Pan Lili[38] researched that the "flipped classroom" teaching method adopted by the experimental group for oral health education is more effective than traditional methods of education. Lin Fang[39] pointed out that the use of teach-back combined video education method for diabetes health education for patients can significantly improve the patient's knowledge and self-management ability. It can be seen that when teaching patients, the use of easy-to-understand and memorable and easy-to-operate methods such as fun question and answer, simulated experience, flipped classroom, and feedback is conducive to the patient's understanding and memory of

knowledge. Therefore, future oral health education and education methods for elderly diabetic patients should take into account the characteristics of the elderly and the characteristics of the education content, and adopt a diversified, easy-to-understand and remember method, but which method of education is most beneficial to elderly diabetic patients Need to continue research and discussion.

Online health education methods

With the development of network communication, many studies have proposed online health education. Online health education can still carry out video lectures, distribute knowledge electronic manuals, regularly return visits, organize patient group exchanges, facilitate communication between medical staff and patients, and help patients consolidate educational content. Li Yuying[40]'s study established a WeChat group in the intervention of the observation group, where the nursing team carried out daily knowledge pushes, patients clocked in every day, and communicated and discussed regularly. The results showed that the blood glucose control level of the observation group was significantly better than that of the control group. Fu Yuting [41] research shows that using the Yiqixiu APP to make health education content into an electronic version, with rich graphics and texts, allows patients to scan the code on their mobile phone and save the health education content for viewing at any time, which can significantly improve patients' unhealthy behaviors. The research of Qu Zhen [42] proposes to use the "317 Nursing" inpatient education platform for health education, and the clinical effect is significant. Research by Lin Xiaoyan [43] pointed out that including the experimental group members into a special QQ group, sending courses in the QQ group every week, and establishing a special database can improve the knowledge level of patients and effectively control blood sugar. Due to the popularization of mobile phones and other electronic devices and the establishment of network platforms, the use of the Internet to carry out health education for elderly diabetic patients can help medical staff to get rid of the constraints of time and place to continuously provide health education to patients and increase the frequency of health education. Efficient and high-speed, but also can bring new learning experience to patients, which is conducive to patient knowledge and self-management. However, elderly patients with vision problems or inflexible use of mobile phones are not recommended for online education. Moreover, education methods like simulated experience education tools can only be carried out offline. Thus, mission mode according to individual patient circumstances will and education content, select online, offline or online and offline combined using a wide range of health education method.

Conclusions

Oral health education for elderly diabetic patients not only helps patients maintain periodontal health, but also plays an important role in the control of patients' blood sugar, which is beneficial to the control of diabetes. However, oral health education for elderly diabetic patients still has the following problems: The method, time and frequency of brushing teeth for oral health education for elderly diabetic patients are used by healthy adults. There are no clear regulations on the method, duration and frequency of brushing teeth for elderly diabetic patients. There are no uniform standards for toothbrushes, medical mouthwashes, and oral health diets for elderly diabetic patients, and there is no horizontal comparison between various methods. There is a lack of large-sample randomized controlled studies on which scheme is effective; In various health education, the lack of influence of different training timing, frequency and intensity of elderly patients with diabetes. Therefore, we will conduct in-depth research on the existing problems in order to build a standardized oral health education program for elderly diabetic patients.

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