Biomedical Research 2017; 28 (15): 6916-6919 *ISSN 0970-938X*
www.biomedres.info

The clinical outcomes of nursing intervention for children with type 2 diabetes mellitus on the treatment adherence.

Hezang Ba*, Xinxin Yu, Shuzhen Han, Lijuan Kang, Chuanwei Xu, Rongyan Xue, Mingyu Li

Department of Paediatrics, Binzhou People's Hospital, Binzhou, Shandong, PR China

Abstract

Objective: To observe the effects of treatment by nursing intervention for children with type 2 diabetes mellitus.

Methods: 90 children with type 2 diabetes mellitus were randomly divided into control group and experimental group. For children in the control group, routine nursing methods were implemented. For children in the experimental group, nursing interventions were carried out. The two groups were kept identical in the case number, for both of which the number of cases were 45. The effects of nursing were examined respectively for both groups after nursing.

Results: The results demonstrated that children in the experimental group were obviously better than children in the control group, including dietary control compliance, excise treatment compliance and drug compliance (P<0.05). Children in the experimental group were more normal than children in the control group in blood glucose, blood lipids, blood pressure and body mass (P<0.05). Children and parents in the experimental group were more satisfied with the quality of nursing than those in the control group (P<0.05).

Conclusion: The cure compliance of children with type 2 diabetes mellitus can be obviously enhanced through active and effective nursing intervention projects. Higher degree of satisfaction can be brought. Widespread use of nursing intervention is feasible.

Keywords: Nursing intervention, Type 2 diabetes mellitus, Cure compliance, Children.

Accepted on July 13, 2017

Introduction

The diabetes is a common endocrine metabolism disease. The relevant data and materials after investigation have shown that prevalence rate falls globally by 5%. Among all the patients with type 2 diabetes mellitus, 2% of them are children.

Children ages 3-13 y who have bacteria are the usual victims [1,2]. Type 2 diabetes mellitus can lead to stunned growth of children. Additionally, the diabetes can trigger the reduction of immune functioning, thus lowering the body's ability to fend off various diseases, and further increasing the risk of illnesses.

Compared with adults, children are different in clinical situation by various ways. For example, weaker self-control ability and lower compliance rate makes it difficult for children to receive proper treatments.

Therefore, it is necessary to enhance the cure compliance of children with type 2 diabetes mellitus through effective nursing intervention. Given this, this paper is aimed at observing and analyzing the effects of nursing intervention on the compliance of children with type 2 diabetes.

The detailed report will show the contents as below [3-7].

Materials and Methods

Materials

The subjects of this study were 90 cases of children with type 2 diabetes, who received treatment in our Binzhou People's Hospital from May 2015 to 2017. All of them met the diagnostic criteria for type 2 diabetes by World Health Organisation. They were given the right to learn the truth of their treatments, and required to sign the formal informed consent of our hospital. In this case, random grouping was implemented. 90 cases were randomly divided into 2 groups, namely, the control group and the experimental group, with 45 cases in each group. Among them, the experimental group contained 25 boys and 22 girls, aged from 5 to 14 y, (8.6 ± 1.2) on average. The control group contains 23 boys and 22 cases of girls, aged from 6 to 16 y, (9.8 ± 1.3) on average. There was of comparability in terms of the data of two groups of children, P >0.05.

Methods

Regular nursing process was conducted in both control group, which involved good basic nursing, close observation of vital signs, active communication with the children and resolving

their depressions according to their psychological status. Regular nursing process was conducted both in control group and experimental group, while in the experimental group integrated nursing intervention was simultaneously added. Firstly, health education including propagandizing knowledge was the main intervention. The nursing staff should build a warm and harmonious relationship with the children and their families. It would make the service credible. Nurses needed to help the families of the children to learn more about type 2 diabetes and their treatment. Such contents as pathogenesis, treatment methods, treatment effectiveness and treatment concerns should be introduced to the families to make them have a correct cognition of the disease. Additionally, they could improve their self-care ability and make active cooperation in the nursing process and treatment. What's more, the nursing compliance of children can also be strengthened.

Secondly, mental care was another intervention. The nurses should pay attention to their psychological state in the communication. If fear, irritability, and weep happened on the children, they needed to comfortably communicate with them with a kind attitude. Patient and acceptable conversations with the children was a good way to eliminate negative emotions. At the same time, the nurses should fully understand the extreme, anger, anxious emotion and undesirable mood of the families. Active communication and specific guidance was good for them to follow the suggestions of the nursing staff. Encouragements were also required to make them mentally tough and assist the nurses for a higher nursing quality. Having confidence in fighting with the disease was quite important.

Thirdly, enhancing the medication nursing was a proficient measure. The nursing staff should inform the families of the right time and ways to take the drugs, and how to monitor the blood sugar. The parents were required to make detailed record every time after testing blood sugar. The families were urged to adhere to long-term medication and take insulin subcutaneous injections on time, to avoid elevated blood glucose and problems such as ketoacidosis due to belated drug use.

Fourthly, dietary nursing was taken. Specific and individualized regimen for each child was designed. The parents were informed of the importance of eating right in the whole process of treatment. Low-sugar, low-fat and low-sodium were the core principles of the scheme. Since the children were on the stage of rapid development and growth, were in larger demand of nutrition, the balance of nutrition should be achieved by following advice of nutritionists and cultivating a good dietetic habit. Through a good and regular dietetic habit, the blood glucose of the children could be kept in a stable range.

Fifthly, exercise nursing was taken. Scientific and rational movement scheme was formulated according to the physical conditions of the children. The favourite sports of the children should be taken priority. 45 min of exercise per day was enough for the enhancement of their physical fitness, and stability of blood glucose. The parents were required to test and record the blood glucose level before and after exercises, in assistance with the purser's work of observing the changes of blood glucose.

Sixth, environmental nursing was carried out. The children were provided with comfortable, clean and tidy environment in the hospital. The wards had appropriate temperature, humidity and draught. It should be sterilized regularly. The sheets and bedding should be kept clean. The children could receive treatments under a comfortable state.

Seventh, discharge guidance was maintained. The nursing staff should inform the parents frequently. The concerns such as taking drugs timely, healthy diets, keeping exercises, testing and recording the level of blood glucose were necessary. Periodic telephone follow-up should be made during 3 months after discharge from the hospital to explore the effects of family rehabilitation on children.

Outcome measures

The compliance of two groups of children, including dietary compliance, exercise compliance, medication compliance, was observed and compared. The normal rate of blood glucose, the normal rate of blood lipids, the normal rate of blood pressure and the normal rate of weight were measured. Satisfaction investigation was made by our homemade questionnaire on the degree of nursing satisfaction. The questionnaire rated respondents on their overall degree of nursing satisfaction on a scale of 1 to 100. The result of "90 to 100" indicated that they were greatly satisfied. 70 to 89 indicated that they were satisfied and the result below 69 indicated that they were unsatisfied.

Scientific statistical method

SPSS21.0 statistical software was used for data analysis and processing, count data were expressed as (n, %) followed by chi-square test and measurement data were described as mean ± SD followed by t-test. $P<0.05$ suggested the difference had statistical significance.

Results

The comparison of the compliance of 2 groups of children

As the statistics in the following Table 1 shows, the experimental group had 40 children (88.89%) of dietary compliance, 38 (84.44%) children of exercise compliance, and 44 (97.78%) children of medication compliance. The control group had 30 children (66.67%) of dietary compliance, 28 (62.22%) of exercise compliance, and 32 (71.11%) of medication compliance. Compared with control group, the experimental group has higher compliance, $P<0.05$.

Table 1. *The comparison of the compliance of 2 groups of children.*

Name of groups	Number of cases	Dietary compliance	Exercise compliance	Medication compliance
Experimental group	45	40 (88.89)	38 (84.44)	44 (97.78)
Control group	45	30 (66.67)	28 (62.22)	32 (71.11)
P		<0.05	<0.05	<0.05

The comparison of relevant indexes of 2 groups of children

As the statistics in the following Table 2 shows, the results of comparing the normal rate of blood glucose, the normal rate of blood lipids, the normal rate of blood pressure and the normal rate of weight of the 2 groups were: the experimental group had 38 children (84.44%) of normal blood glucose, 36 (80.00%) children of normal blood lipids, 34 (75.56%) of normal blood pressure and 40 (88.89%) of normal weight. The control group includes 30 children (66.67%) of normal blood glucose, 25 cases (55.56%) of normal blood lipids, 28 cases (62.22%) of normal blood pressure and 26 cases (57.78%) of normal weight. Compared with control group, the experimental group had higher percentages in terms of each index, P<0.05.

Table 2. *The comparison of the blood glucose, blood lipids, blood pressure and weight of 2 groups of children.*

Name of groups	Number of cases	Normal blood glucose	Normal blood lipids	Normal blood pressure	Normal weight
Experimental group	45	38 (84.44)	36 (80.00)	34 (75.56)	40 (88.89)
Control group	45	30 (66.67)	25 (55.56)	28 (62.22)	26 (57.78)
P		P<0.05	P<0.05	P<0.05	P<0.05

The comparison of the degree of nursing satisfaction of 2 groups

As the statistics in the following Table 3 shows, the result of comparing the degree of nursing satisfaction of 2 groups showed that the experimental group had a higher degree of nursing satisfaction, P<0.05.

Table 3. *The comparison of the degree of nursing satisfaction of 2 groups.*

Name of groups	Number of cases	Greatly satisfied	Satisfied	Unsatisfied	General satisfaction
Experimental group	45	30	15	0	45 (100.00)
Control group	45	20	17	8	37 (82.22)
P					<0.05

Discussion

With the continuous development of economy, people's life level has been improved and their lifestyle as well as eating habits has changed, contributing to an increasing trend of obesity in children. Meanwhile, the number of sick children with type 2 diabetes has increased dramatically. Clinical symptoms of type 2 diabetes are various, such as much food, much drink, significant lost weight, depression and fatigue. If effective measures for treatment is not taken timely, many complications such as infectious diseases, vascular lesions and ketoacidosis poisoning are much likely to occur, directly affecting the patient's life, health and safety. At present, drug therapy is mainly used to treat type 2 diabetes. A lot of researches and practical experiences show that, during the period of drug treatment, a positive and effective nursing intervention should be taken. It will enhance the treatment compliance of children, thus giving full play to the drugs' effectiveness [8-15].

In this study, different ways of nursing measures were carried out by groups to explore the effective measures to improve type 2 diabetes treatment compliance. The results showed that the investigation group, with the implementation of comprehensive nursing care plan, had better effects. Comprehensive nursing intervention program contains environmental nursing, health propaganda and education, psychological nursing, medication nursing, exercise and dietary nursing, etc. During the process of nursing, a harmonious relationship between nurses and patients as well as their families should be built and the nurses are required to alleviate the children and their family's negative emotions, which is helpful to enhance treatment compliance and nursing compliance [16,17]. The necessary diet nursing and exercise nursing can help children to form scientific and reasonable habits, which has an important influence in the healthy growth of children in the future. Therefore, scientific and psychological nursing, guiding of medication and nursing, diet nursing can actively improve the insulin resistance of children, enhancing the body's immune ability and achieving an optimum of treatment effects through better treatment compliance [18-20].

Conclusion

To sum up, positive and effective nursing intervention program towards children with type 2 diabetes mellitus can promote the

improvement of the children's treatment compliance, obtaining higher nursing satisfaction, which is helpful for further enhancement of nursing quality and level. As a result, it is worthy of popularization in clinical practices.

References

1. Tan F, Bo L, Xie X. The effects of nursing invention on the medication compliance of children with epilepsy children. Med Equip 2016; 15: 154-155.
2. Li H. The influence and analysis of the nursing invention on the life quality, treatment compliance of pregnancy associated with diabetes. J Pract Gynecol Endocrinol 2016; 24: 119-120.
3. Li J. The analysis of the influence of nursing invention on the compliance of patients with 2 type diabetes. Diabetes New World 2016; 10: 157-158.
4. Ji X. Influence of nursing intervention on treatment compliance of patients with type 2 diabetes mellitus. Diabetes New World 2016; 26: 154-155.
5. Yu YB, Xiong W, Cao YH. A conceptual model of supply chain risk mitigation: the role of supply chain integration and organizational risk propensity. J Coastal Res 2015; 73: 95-98.
6. Yang ZC, Lv YZ, Li H. Changes of soil organic carbon in soil aggregates under different stages of desertification in the ordos sand land of Inner Mongolia. J Coastal Res 2015; 73: 420-425.
7. Cui Y. Analysis of the influence of family nursing interventions on treatment compliance and quality of life in children with diabetes mellitus. Diabetes New World 2016; 11: 141-142.
8. Zhang H, Zhang L, Wu L. Influence of family nursing interventions on treatment compliance and quality of life in children with diabetes mellitus in childhood. J Clin Med Pract 2016; 20: 114-116.
9. Wang J. Analysis of the influence of humanized nursing on the treatment compliance of patients with diabetes mellitus. Public Med Forum Magazine 2016; 6: 1108-1109.
10. Yang X. Combining quantitation of remote sensing information of local structures- bearing oil/gas of marine and calculation of structural deformation and stress field. J Coastal Res 2015; 73: 448-452.
11. Liu Y, Shen Y. Influence of crack geometric properties on its propagation tendency of rail surface crack under rolling contact fatigue for the port machines. J Coastal Res 2015; 73: 188-192.
12. Zhou W. Analysis of the influence of nursing invention on patients with diabetes mellitus. Chin Med J Metallurg Industry 2015; 11: 730-731.
13. Li L, Li Y. The influence of continuing nursing invention on the treatment compliance and clinical effects of mid-elderly diabetes mellitus. Nursing J Chin Peoples Liberation Army 2015; 21: 74-76.
14. Tian G. Analysis of the influence of nursing invention on children with type 1 diabetes mellitus. J Qiqihar Univ Med 2015; 25: 2946-2947.
15. Ma Y. Research on coupling prediction of mooring line tension and motion response of vertical axis floating tidal energy converter. J Coastal Res 2015; 73: 496-504.
16. Liu W. Discussion on the influence of nursing invention on the treatment compliance of children with type 1 diabetes mellitus. Diabetes New World 2015; 10: 207-208.
17. Liu X, Zhang Y, Guo H. Discussion on the influence of nursing invention on the treatment compliance of children with type 1 diabetes mellitus. Diabetes New World 2015; 20: 134.
18. Yue Y. Analysis of the effect of systematic nursing intervention on the treatment compliance of patients with diabetes. Diabetes New World 2015; 22: 16-17.
19. Li J. The influence and analysis of the nursing invention on the treatment compliance of pregnancy associated with diabetes. Diabetes New World 2014; 30: 98.
20. Wang Y, Zou Y. Effects of nursing intervention on the treatment adherence and clinical efficacy in HFMD children. World Notes Antibiotics 2012; 24: 274-276.

*Correspondence to

Hezang Ba

Department of Paediatrics

Binzhou People's Hospital

Binzhou

Shandong

PR China