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The Positive Effect of Wechat Health Education on Standardized Disposal of Fraxiparine's Syringes in Patients after Cesarean Section

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Abstract: Objective: To study the patients injected with Fraxiparine at home after cesarean section by using WeChat health education model for management explore the disposal of Fraxiparine's syringes. Methods: A total of 316 patients injected with Fraxiparine at home after cesarean section were studied by questionnaire, with 128 patients with traditional mode of management, 188 patients with WeChat health education mode of management. On the day of discharge, 7 days after discharge and 14 days after discharge, questionnaires were used to investigate the knowledge assessment of syringes disposal, the occurrence rate of needle stab wounds, the recognition of standardized disposal of Fraxiparine's syringes and disposal situation of discarded syringes, etc. Results: under the WeChat health education mode of management, the knowledge assessment pass rate of patients and the recognition degree of standardized disposal of Fraxiparine's syringes were higher, the compliance rate of standardized treatment of syringes was significantly increased, and the occurrence rate of needle stab wounds was significantly reduced (all $P<0.05$). Conclusion: WeChat health education can improve the theoretical knowledge mastery degree and recognition degree of standardized disposal of abandoned syringes, and improve the compliance rate of standardized disposal of used Fraxiparine's syringes in patients with self-injection after cesarean section. WeChat health education has positive effect and is worthy of clinical promotion.

1. Introduction

Fraxiparine is LMWH (Low Molecular Weight Heparin), which is composed of ordinary Heparin through deaggregation [1]. Fraxiparine has a rapid and continuous antithrombotic effect. When used under normal circumstances, the preventive dose of Fraxiparine does not affect the time of APTT (Activated Partial Thromboplastin Time) and is a commonly used antithrombotic drug in clinical practice. After cesarean section, the body platelets and other coagulation factors increase in stress, and prolonged sitting and lying leads to decreased blood flow speed, which is easy to cause distal venous reflux disorder and increase the incidence of lower limb deep venous thrombosis. The application method of Fraxiparine is subcutaneous injection, which is the same as insulin. It is easy to learn and use. Self-injection is highly feasible for patients, so it is often widely used as an

antithrombotic drug for patients at home after cesarean section. However, due to the lack of knowledge on medical waste disposal, needle stab wounds occurred frequently among patients and community cleaning workers [2]. Standardized disposal of medical waste is the root of preventing needle stab wounds. Our hospital adopted WeChat health education mode to manage patients who are injected Fraxiparine at home after cesarean section, which effectively improves patients' recognition degree of standardized disposal of used syringes and compliance rate of standardized disposal of the Fraxiparine's syringe. The research results are now reported as follows.

2. Materials and Methods

2.1 Materials

This study was approved by the Ethics Committee of our hospital. Inclusion criteria: ①The women underwent cesarean section in our hospital from August 2019 to February 2020; ②During the perinatal period, the results of fibrinogen content exceeding 4.0g/L, D-dimer content higher than 0.5g/L, platelet count higher than 300* 10^{12}/L or hemoglobin content above 130 g/L in blood; ③ No miscarriage, induced labor and other adverse pregnancy history or other family genetic diseases; ④During the perinatal period did not take drugs that affect the clotting mechanism; ⑤Normal metabolism of all bodily functions, no cardiovascular diseases, no genital, eye, liver and kidney diseases, no contraindications for operation and anticoagulant therapy; ⑥Before and after perinatal period did not receive traumatic surgical treatment. Exclusion criteria: ①Lower extremity injury or infection; ②Had been treated with anticoagulant therapy; ③The clinical examination results are not detailed.

2.2 Methods

A questionnaire was designed to investigate the general information of patients who injected Fraxiparine at home after cesarean section, including age, education background, duration for drug use, disposal method and process of abandoned syringes, occurrence of needle stab wounds, cognition level of disposal of abandoned syringes, disposal situation of abandoned syringes, etc. The content of the questionnaire includes the assessment of the syringe disposal knowledge. The total score is 100, and 70 is qualified. On the day of discharge, 7 days and 14 days after discharge, patients scanned WeChat two-dimensional code to obtain questionnaires.

Control group Patients were given general health education. At the time of discharge, patients were routinely taught about the disposal of the syringe and health education was distributed. Patients were required to obtain and fill in questionnaires on the day of discharge, 7 days after discharge and 14 days after discharge. Observation group patients were treated with WeChat health education mode for the management. On the day of discharge, 7 days after discharge, and 14 days after discharge, the patients were treated with WeChat online learning injection method and disposal process of abandoned syringes, and the questionnaire survey method was the same as that of the control group.

SPSS22.0 statistical software was used to conduct independent sample T test, Chi-square test, Fisher's exact test, etc. on the data obtained in the study. When $P<0.05$, the comparison difference was statistically significant.

3. Results

3.1 Questionnaire Distribution and Recovery 316 Questionnaires Were Distributed through

Wechat, and 316 Were Recovered with an Effective Recovery Rate of 100%.

3.2 General Information of the Patients a Total of 316 Patients, All of Whom Were Female, Participated in the Survey, and Their General Information Was Shown in Table 1.

Table 1 Comparison of General Information between the Two Groups

	Control group (n=128)	Observation group (n=188)	t/χ^2	P
Age/y	30.58±4.62	31.55±5.08	-1.738	0.085
education background			0.432	0.934
Primary school	19(14.84%)	31(16.49%)		
Junior high school	21(16.41%)	30(15.96%)		
senior high school	25(19.53%)	32(17.02%)		
university or above	63(49.22%)	95(50.53%)		
Duration of hospitalization/d	5.55±1.30	5.66±1.42	-0.666	0.506
Duration of Injection /d	15.64±2.98	15.56±2.92	0.228	0.820

3.3 Assessment qualification of patients in the two groups Assessment results of the two groups on the discharge day, 7 days after discharge, and 14 days after discharge was shown in Table 2.

Table 2 Assessment Qualification Of Patients in the Two Groups (n=316)

	Control group (n = 128)	Observation group (n=188)
discharge day	71(55.47%)	108(57.45%)
7 days after discharge	80(62.50%)	137(72.87%)
14 days after discharge	65(50.78%)	181(90.96%)
χ^2	9.662	
P	0.008	

3.3 Occurrence of Needle Stab Wounds in the Two Groups on 7 Days after Discharge and 14 Days after Discharge, the Occurrence of Needle Stab Wounds in the Two Groups Was Shown in Table 3.

Table 3 Occurrence of Needle Stab Wounds in the Two Groups(n=316)

	Control group (n = 128)	Observation group (n=188)
7 days after discharge	46(35.94%)	27(14.36%)
14 days after discharge	41(32.03%)	9(4.79%)
χ^2	5.167	
P	0.023	

3.5 Recognition of the necessity of abandoned syringes' standardized disposal In the WeChat health education, the recognition of the necessity of abandoned syringes' standardized disposal was shown in Table 4.

Table 4 Recognition of The Necessity of Abandoned syringes' Standardized Disposal

	It's unimportant	It's important	It's very unimportant
discharge day	103(54.79%)	58(30.85%)	27(14.36%)
7 days after discharge	68(36.17%)	74(39.36%)	46(24.47%)
14 days after discharge	11(5.85%)	34(18.08%)	143(76.06%)
Fisher	202.505		
P	0.000		

3.4 Disposal of Fraxiparine's Abandoned Syringes under the Wechat Health Education

Mode of Management, the Disposal of Fraxiparine's Abandoned Syringes Was Shown in Table 5.

Table 5 Disposal of Fraxiparine'S Abandoned Syringes

	Throw them into the household garbage	Put them into a hard container before throw them into household garbage	Load them into a hard container and send to the hospital for recovery
7 days after discharge	56(29.79%)	81(43.08%)	51(27.13%)
14 days after discharge	18(9.57%)	47(25.00%)	123(65.43%)
χ^2	58.338		
P	0.000		

4. Discussion

4.1 Wechat Health Education Can Improve the Knowledge Mastery of the Patients after Cesarean Section about Disposing the Fraxiparine's Abandoned Syringes

In our study, assessment qualification rate of the group that accepting the Wechat health education was higher than the traditional group. In addition, the patients that accepting the Wechat health education had clearly lower needle stab wounds rate. Zhang He's research showed that 43.61% of home injection patients or family member had needle stab wounds [3] ,however our study showed that only 4.79% of home injection patients had needle stab wounds. It may be relevant to what the patients know more about disposal of abandoned syringes after accepting the Wechat health education and start to prevent needle stab wounds.

4.2 Wechat Health Education Can Improve the Recognition of Abandoned syringes' Standardized Disposal

Relevant studies showed that only a few patients received had been educated in the standardized disposal of abandoned syringes [4]. In this study, on 7 days after discharge 36.17% of the patients thought it was unimportant to standardize the disposal of abandoned syringes, 39.36% of the patients thought it was important to standardize the disposal of abandoned syringes, and 24.47% of the patients thought it was very important to standardize the disposal of abandoned syringes; on the 14 day after discharge, 5.85% of the patients believed that the standardized disposal of abandoned syringes was unimportant, 18.08% believed that the standardized disposal of abandoned syringes was important, and 76.06% believed that the standardized disposal of abandoned syringes was very important. Therefore, under the influence of WeChat health education, patients' recognition of abandoned syringes' standardized disposal increased significantly ($P=0.000<0.05$).

4.3 Wechat Health Education Can Promote the Standardized Disposal of Abandoned Syringes in Patients Receiving Fraxiparine's Injection At Home after Cesarean Section

De Coninck's result showed that in patients who use sharps syringes, 46% patients threw the needle to household garbage directly, 12% patients placed the needle in the empty bottles or cartons,

only 33% of patients placed into special storage container [5]. In our study, on 7 days after discharge 29.79% of patients threw abandoned syringes into the household garbage, 43.08% of patients put them into a hard container before threw them into household garbage; 27.13% of patients loaded them into a hard container and sent to the hospital for recovery; on 14 days after discharge 9.57% of the patients threw them into the household garbage, 25.00% of the patients put them into a hard container before threw them into household garbage, 65.43% of the patients loaded them into a hard container and sent to the hospital for recovery, which was all better than De Coninck's study. Under the Wechat health education, the rate of standardized disposal was significantly increased. ($P=0.000<0.05$).

5. Conclusion

The Regulations of China on the Management of Medical Waste clearly pointed out that medical waste refers to the waste with direct or indirect infectivity, toxicity and other harmful effects produced by medical and health institutions in hospital, centers for disease control, community health center. The injurious waste refers to the discarded medical sharp instruments, such as syringes, that can stab human body. Infectious waste refers to medical waste that carries pathogenic microorganisms and has the risk of causing the transmission of infectious diseases, such as disposable medical supplies. Therefore, syringes are both injurious wastes and infectious wastes, which do great harm to human environment and health. In this study, WeChat health education was used to manage patients who received injection of Fraxiparine at home after cesarean section. WeChat as intermediary, popularized the related knowledge of the Fraxiparine's syringe disposal, improved the patient's mastery of relevant knowledge and recognition of the necessity of abandoned syringes' standardized disposal, reduced the events of the needle stab wounds. However, there were some limitations in this study: since the patients of this study were only from a hospital in Zhejiang Province, the conclusion might be limited. The scope and objects of study need to be further expanded to determine applicability and universality in other areas.

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