Assessing the Effect of Personalized Nursing on Thrombolytic Hemodialysis Patients After Arteriovenous Fistula Occlusion

Huixia Yu¹, Xiutin Li²,* , Jian Li¹, Yi Yang¹, Guanmin Wu¹, Guiyan Wen²

¹Blood Purifying Center, The First Affiliated Hospital, Jinan University, Guangzhou, China
²Gastroenterology Department, The First Affiliated Hospital, Jinan University, Guangzhou, China

Email address:
672840838@qq.com (Huixia Yu), 503549284@qq.com (Xiutin Li), 137905065@qq.com (Jian Li), 1083602537@qq.com (Yi Yang), derrickwgm126.com (Guanmin Wu), wengy78@126.com (Guiyan Wen)

*Corresponding author

To cite this article:
Huixia Yu, Xiutin Li, Jian Li, Yi Yang, Guanmin Wu, Guiyan Wen. Assessing the Effect of Personalized Nursing on Thrombolytic Hemodialysis Patients After Arteriovenous Fistula Occlusion. American Journal of Nursing Science. Vol. 9, No. 5, 2020, pp. 320-323. doi: 10.11648/j.ajns.20200905.13

Received: August 7, 2020; Accepted: August 18, 2020; Published: August 31, 2020

Abstract: Objective: To assess the effect of personalized nursing on thrombolytic hemodialysis patients after arteriovenous fistula occlusion. Methods: 92 patients who undergoing arteriovenous fistula in the hospital were invited to join our study. The time of they receive the treatment is from May 2015 to July 2020. In study beginning, the patients were randomly assigned to the control group (n = 46) and an intervention group (n = 46). The two groups receive different nursing intervention. The control group receive common nursing intervention. On the other hand, the intervention group patients receive personalized nursing intervention in treatment process. Result: In basic patient information, the patient basic status are similar [20 (47.6%) vs 23 (54.8%), 38.14±9.12 vs 37.88±10.07, 1.41±0.75 vs 1.37±0.69], that the gender, age and number of thrombolysis are not statistical significance (p > 0.05). In thrombolysis success rate research, the intervention group has higher thrombolysis success rate than that of control group [38 (90.5%) vs 32 (76.2%), p = 0.016]. In patient satisfaction research result, more intervention group patients make very well assessment than that of control group patients [19 (45.2%) vs 10 (23.8%), p < 0.005]. Conclusion: the personalized nursing intervention not only increase thrombolysis success rate but also improve the patient satisfaction in arteriovenous fistula occlusion.

Keywords: Arteriovenous Fistula, Hemodialysis, Nursing

1. Introduction

Based on 1966 report, the arteriovenous fistula (AVF) was first reported [1]. Nowadays, it has become the preferred and most widely used method for hemodialysis access. In the research guide, it indicated an AVF should be the first choice for hemodialysis patients as AVF had good safety and good stability [2, 3]. Base on some reports, the efficiency improvement of the success rate of a forearm AVF is saving limited vascular resources [4]. In addition, AVF is considered the most adequate access for hemodialysis therapy that it has longer durability, allows a safe and continuous vascular system approach, and is associated with a lower morbidity and mortality in comparison with arteriovenous grafts and catheters [5, 6]. However, the patients who undergoing central venous catheter therapy have higher infection rates, cardiovascular events, and hospitalization in reports [7, 8]. According to recent report, the AVF method has attracted increasing attentions due to its ability of preserving the energy invariant automatically and its high-order accuracy in time. In addition, a large number of works have been devoted to solve various partial differential equations using the AVF technique in time discretization incorporating with different space discretization methods in.

Base on the report, the number of hemodialysis patients has been increasing by approximately 5% each year [9]. However,
in a wide range of nursing intervention areas, hemodialysis patients are exposed to non-compliance risks [10, 11]. Personalized nursing intervention is an effective tool to foster appropriate self-care management of patients while lowering healthcare treatment costs and to empower the patient of sick by improving their knowledge, attitudes, concerns, and practices regarding the illness [12, 13]. The aim of this article is that assess the effect of personalized nursing on thrombolytic hemodialysis patients after arteriovenous fistula occlusion [7, 10, 12].

2. Methods
2.1. Participants Enrollment and Survey Methods
92 patients who undergoing arteriovenous fistula in the hospital were invited to join our study. The time of they receive the treatment is from May 2015 to July 2020. In study beginning, the patients were randomly assigned to the control group (n = 46) and an intervention group (n = 46). The two groups receive different nursing intervention. The control group receives common nursing intervention. On the other hand, the intervention group patients receive personalized nursing intervention in treatment process. In addition, we collected the related information from treatment outcome and data of patient, the information includes basic patient information, thrombolysis success rate and patient satisfaction. The data of patient from medical recording and questionnaire, the basic patient information, thrombolysis success rate and Time of thrombolysis are collected from medical recording, the patient satisfaction is collected from sample questionnaire that contains very well level, good level and dissatisfaction level.

Their inclusion criteria were: (1) The patient successfully complete AVF; (2) Patients volunteered to participate our study; (3) They did not suffer from severe complications. Their withdraw criteria were: (1) Poor mental status; (2) Patients change their treatment structure.

2.2. Statistical Analysis
Our data analyzer performed the statistical analysis by SPSS 22.0. The P value, t-test and chi-square test were associated with collection result were analyzed. Besides, the mean standard deviation for statistical description.

3. Result
In Table 1, it indicated gender, age and number of thrombolysis in basic patient information. Between the intervention group and control group, their basic status are similar [20 (47.6%) vs 23 (54.8%), 38.14±9.12 vs 37.88±10.07, 1.41±0.75 vs 1.37±0.69], that the gender, age and number of thrombolysis are not statistical significance (p > 0.05).

In thrombolysis success rate research, it shows thrombolysis success rate of patient and time of thrombolysis (Table 2). The intervention group has higher thrombolysis success rate than that of control group [38 (90.5%) vs 32 (76.2%), p = 0.016]. In similar, the intervention group patients receive shorter time of thrombolysis than that of control group patient (1.3±1.2 vs 1.6±1.7, p = 0.044).

The patient satisfaction was collected after treatment. It contains 3 levels: very well level, good level and dissatisfaction level (Table 3). In research result, more intervention group patients make very well assessment than that of control group patients [19 (45.2%) vs 10 (23.8%), p < 0.005]. however, the assessment status of good level is similar between the two groups [21 (50.0%) vs 25 (59.5%), p = 0.162]. In assessment of dissatisfaction level, although intervention group has less this assessment than that of control group, their simple number are too less [2 (4.8%) vs 7 (16.7%)].
4. Discussion

The AVF is defined that is an abnormal passageway between an artery and a vein, which can be congenital or acquired due to pathologic process [14]. As vascular access is necessary for hemodialysis, the people thinks that AVF is considered the preferable access route for maintenance hemodialysis [15]. Based on the report, patients undergoing hemodialysis are approximately exposed to 300 punctures per year to their arteriovenous fistula. The pain of AVF puncture is common among the patients as acute and chronic pain which reported in more than 82% and 92% of them [16]. Additionally, the people advocate creating the first AVF as far distally in the upper extremity as possible. Because doctor preserve as many future vascular access options as possible and provide a long segment of arterialized vein for repeated venipuncture [17]. Base on some reports, patients with artificial blood vessel blockage time will affect the success rate of thrombolysis, that the success rate of thrombolysis will increase with the shorter clogging time [15]. In the work of nurses, the success of puncture directly affects the success of thrombolysis [14].

Based on the above results, the personalized nursing intervention not only increase thrombolysis success rate but also improve the patient satisfaction in arteriovenous fistula occlusion. In basic patient information, the basic patient status of two group are similar in this study. Therefore, this study can eliminate most of the interfering factors. In thrombolysis success rate research, the intervention group patients have better performance than that of control group, that intervention group has higher thrombolysis success rate and shorter time of thrombolysis. In patient satisfaction, the intervention group patients provide more very well level assessments in this study, that the result is not statistical limitation, the simple size limits the accuracy of results in this study. In conclusion, the personalized nursing intervention improves thrombolysis success rate and the patient satisfaction in arteriovenous fistula occlusion. The intervention group result indicated that they not only had better performance in thrombolysis success rate but also they has shorter time of thrombolysis. Although the good assessment of patient satisfaction is similar in two group, the intervention group has more very well assessment in the research result of patient satisfaction.

5. Conclusion

In conclusion, the personalized nursing intervention improves thrombolysis success rate and the patient satisfaction in arteriovenous fistula occlusion. The intervention group result indicated that they not only had

| Projects                  | Very well (%) | Good (%)  | Dissatisfaction (%) |
|---------------------------|---------------|-----------|---------------------|
| Intervention group (n = 42) | 19 (45.2%)    | 21 (50.0%)| 2 (4.8%)            |
| Control group (n = 42)    | 10 (23.8%)    | 25 (59.5%)| 7 (16.7%)           |
| P value                   | < 0.005       | 0.162     | < 0.005             |

Table 3. Patient satisfaction.

References

[1] Brescia MJ, Cimino JE, Appel K, et al. Chronic hemodialysis using venipuncture and a surgically created arteriovenous fistula. N Engl J Med. 1966; 275 (20): 1089-92.

[2] Vora AN, Stanislawski M, Grunwald GK, et al. Association between chronic kidney disease and rates of transfusion and progression to end-stage renal disease in patients undergoing transradial versus transfemoral cardiac catheterization-an analysis from the veteran’s affairs Clinical Assessment Reporting and Tracking (CART) Program. J Am Heart Assoc. 2017; 6 (4): e004819.

[3] Remuzzi A, Bozzetto M, Brambilla P, et al. Is shear stress the key factor for AVF maturation? J Vasc Access. 2017; 18: 10-14.

[4] Parmar J, Aslam M, Standfield N, et al. Pre-operative radial arterial diameter predicts early failure of arteriovenous fistula (AVF) for haemodialysis. Eur J Vasc Endovasc Surg. 2017; 33 (1): 113-15.

[5] Al-Jaishi AA, Liu AR, Lok CE, Zhang JC, Moist LM, Al-Jaishi AA, et al. Complications of the arteriovenous fistula: a systematic review. J Am Soc Nephrol 2016; 28 (6): 1839-1850.

[6] Özen N, Tosun N, Cinar FI, Bagcivan G, Yilmaz MI, Askin D, et al. Investigation of the knowledge and attitudes of patients who are undergoing hemodialysis treatment regarding their arteriovenous fistula. J Vasc Access 2017; 18 (1): 64-68.

[7] Pessoa NRC, Linhares FMP. Hemodialysis patients with arteriovenous fistula: knowledge, attitude and practice. Escola Anna Nery 2015; 19 (1): 73-9.

[8] Clementino DC, Souza AMQ, Barros DCC, Carvalho DMA, Santos CR, Fraga SN. Hemodialysis patients: the importance of self-Care with the arteriovenous fistula. Journal of Nursing UFPE on line 2018: 12 (7): 1841-1852.

[9] Clark S, Farrington K, Chilcot J. Nonadherence in dialysis patients: Prevalence, measurement, outcome, and psychological determinants. Semin. Dial. 2015; 27: 42-49.

[10] Başer E, Mollaoglu M. The effect of a hemodialysis patient education program on fluid control and dietary compliance, Hemodial. Int. 2019; 23: 392-401.

[11] Barzegar M, Valizadeh S, Gojazadeh M, Asghari Jafarabadi M, Zamanzadeh V, Shahbazi S. The effects of two educational strategies on knowledge, attitude, concerns, and practices of mothers with febrile convulsive children, Thrita 2016; 5: 33411.
[12] Dehghanmehr S, Mansouri A, Faghihi H, Piri F. The effect of acupressure on the anxiety of patients undergoing hemodialysis-a review. J Pharm Sci Res. 2017; 9 (12): 2580e4.

[13] Kılıç Akça N, Tas Ç, Karatas N. Effect of acupressure on patients in Turkey receiving hemodialysis treatment for uremic pruritus. Altern Therap HealthMed. 2013; 19 (5): 8e12.

[14] Muz G, Tas Ç. Effect of aromatherapy via inhalation on the sleep quality and fatigue level in people undergoing hemodialysis. Appl Nurs Res. 2017; 37: 28-35.

[15] Movahedi M, Ghafari S, Nazari F, Valiani M. The effects of acupressure on pain severity in female nurses with chronic low back pain. Iran J Nurs Midwifery Res. 2017; 22 (5): 339.

[16] Scholz SS, Vukadinovic D, Lauder L, Ewen S, Ukena C, Townsend RR, et al. Effect of arteriovenous fistula on blood pressure in patients with end-stage renal disease: a systematic meta-analysis. J Am Heart Assoc. 2019; 8: e011183.

[17] Yang G, Lin S, Wu Y, Zhang S, Wu X, Liu X, et al. Auricular acupressure helps alleviate xerostomia in maintenance hemodialysis patients: a pilot study. J AltCompl Med. 2017; 23 (4): 278-284.