

Learning needs of professional nurses to care for patients with arteriovenous fistula*

Necessidades de aprendizagem de profissionais de enfermagem na assistência aos pacientes com fístula arteriovenosa

Necesidades de aprendizaje de profesionales de enfermería en la asistencia a pacientes con fístula arteriovenosa

Rita de Cássia Helú Mendonça Ribeiro¹, Ana Luiza Leite de Miranda², Claudia Bernardi Cesarino³, Daniela Comelis Bertolin⁴, Daniele Fávaro Ribeiro⁵, Luciana Kusumota⁶

ABSTRACT

Objectives: To identify the learning needs of professional nurses to provide quality care for patients with arteriovenous fistula (AV Fistula) for hemodialysis. **Methods:** This cross-sectional descriptive study was conducted with 36 professional nurses from the hemodialysis unit of a hospital in the State of São Paulo. A semi-structured questionnaire was used to collect the data. Initially, questionnaires were distributed to 43 nurses, but only 36 (83.7%) responded and returned the questionnaires. **Results:** A great number of nurses (44.9 %) reported to have difficulties in providing quality care for patients with AV Fistula. Difficulties were related to the access of AV Fistula for hemodialysis (47.2%), hemostasis of the site when withdrawing the needle after hemodialysis (19.4%) and lack of competency for the management of hematoma (13.9%), and patient's instructions and education (19.4%). **Conclusions:** Nurses had many learning needs to prepare them to care for patients with arteriovenous AV Fistula. This finding led to the development of a protocol to facilitated quality care nursing care. **Keywords:** Nursing care; Arteriovenous fistula; Hemodialysis/complications

RESUMO

Objetivo: Identificar as necessidades de aprendizagem de profissionais de enfermagem na prestação de assistência aos pacientes portadores de fístula arteriovenosa (FAV) em hemodiálise, a fim de melhorar os cuidados prestados a estes pacientes. **Métodos:** Trata-se de um estudo transversal, com coleta de dados realizada por meio de questionário semi-estruturado entregue aos profissionais de enfermagem que atuavam na unidade de hemodiálise de um Hospital Base do interior do Estado de São Paulo. Do total de 43 profissionais, 36 (83,7%) responderam a esse questionário. **Resultados:** Dentre os 36 participantes do estudo, 44,9% apresentaram dificuldades na assistência prestada ao paciente portador de FAV, sendo 47,2% em punccionar a FAV; 19,4% na hemostasia após a retirada das agulhas; 19,4% informaram ter dúvidas na orientação dos pacientes e 13,9% relataram falta de habilidade quando a FAV apresenta hematoma. **Conclusão:** Foi possível conhecer as necessidades de aprendizagem na assistência de enfermagem ao paciente portador de FAV e elaborar um protocolo para a assistência de enfermagem, a fim de melhor os cuidados prestados a estes pacientes.

Descritores: Cuidados de enfermagem; Fístula arteriovenosa; Hemodiálise/complicações

RESUMEN

Objetivo: Identificar las necesidades de aprendizaje de profesionales de enfermería en la asistencia a los pacientes portadores de fístula arteriovenosa (FAV) en hemodiálisis a fin de mejorar los cuidados prestados a estos pacientes. **Métodos:** Se trata de un estudio transversal, cuya recolección de datos fue realizado por medio de un cuestionario semi-estructurado entregado a los profesionales de enfermería que actuaban en la unidad de hemodiálisis de un Hospital Base del interior del Estado de Sao Paulo. Del total de 43 profesionales, 36 (83,7%) respondieron el cuestionario. **Resultados:** De los 36 participantes del estudio, el 44,9% presentaron dificultades en la asistencia prestada al paciente portador de FAV, siendo el 47,2% en la punción de la FAV; el 19,4% en la hemostasia después del retiro de las agujas; el 19,4% informaron tener dudas en la orientación de los pacientes y el 13,9% relataron falta de habilidad cuando la FAV presenta hematoma. **Conclusión:** Fue posible conocer las necesidades de aprendizaje en la asistencia de enfermería al paciente portador de FAV y elaborar un protocolo para la asistencia de enfermería, a fin de mejorar los cuidados prestados a estos pacientes.

Descripciones: Atención de enfermería; Fístulas arteriovenosas; Hemodiálisis/complicaciones

* Study developed Hemodialysis Sector of a Base Hospital of Fundação Faculdade Regional de Medicina de São José do Rio Preto (SP), Brasil.

¹ Professor at the Graduation Course in Nursing, Faculdade de Medicina de São José do Rio Preto - FAMERP – São José do Rio Preto (SP), Brazil.

² Nurse at the Institute of Urology and Nephrology of São José do Rio Preto (SP), Brazil.

³ PhD Professor at the Graduation Course in Nursing, Faculty of Medicine of São José do Rio Preto - FAMERP – São José do Rio Preto (SP), Brazil.

⁴ Professor at the Graduation Course in Nursing of Universidade Paulista – UNIP – São José do Rio Preto – Brazil.

⁵ Nurse at the Nefrology Service of Hospital de Base Fundação Faculdade Regional de Medicina – FUNEARME – São José do Rio Preto (SP), Brazil.

⁶ PhD Professor at the Nursing College of Ribeirão Preto (EERP), Universidade de São Paulo (USP) – Ribeirão Preto (SP), Brazil.

INTRODUCTION

Hemodialysis is a treatment that ensures survival for patients with chronic kidney failure, however that treatment does not effectively promote the cure nor compensate the lowering of the kidney's endocrinal or metabolic functioning levels. The dialysis method is the most used. More than 120.000 patients are currently being treated through that therapy in the United States. The dialysis is a resource for patients in an acute disease level, who needs a dialysis for short time (days or weeks), as well as for patients at a terminal level with acute renal failure who require a long or permanent therapy⁽¹⁻²⁾.

Currently, there are 70,873 patients on substitutive renal therapy, according to the survey made by the Brazilian Nephrology Association in 2006 (Censo da Sociedade Brasileira de Nefrologia de 2006), of which the hemodialysis is the first of all treatments (90.7%) for those kind of patients. The best centers of hemodialysis today report a mortality rate inferior to 10% per year⁽³⁾.

Patients under hemodialysis need to have a good venous access as they should be under treatment for life (usually three times a week, for a minimum of three to four hours per session), or until they have a successful kidney transplant operation. Patients are taken to chronic dialysis when such therapy is needed for survival and control of the uremic level. The tendency shows the treatment for acute renal failure is to start the procedure before the signs associated with high uremic levels appear⁽⁴⁾.

The vascular access elected in patients for hemodialysis is the arteriovenous fistula (AVF), which consists of a subcutaneous anastomosis of an artery with an adjacent vein, generally in the not-dominant arm, to limit any functional incapacity that may occur. The hemodialysis should be started as distally as possible, moving upwards proximally to the arm, whenever the access fails and needs to be rebuilt. When the accesses of the non-dominant arm are all used, the dominant arm can be used⁽⁵⁾.

The existence of a proper vascular access is fundamental for any procedure involving extracorporeal depuration of the blood. Such important characteristic is particularly required in chronic patients. The growing number of old individuals in hemodialysis represents a significantly big challenge related to the establishment and maintenance of good vascular accesses. Approximately 25% of hospitalizations for hemodialysis patients refer to problems caused by the vascular system^(3, 6).

The arteriovenous fistula presents the best frequency of functioning in five years and during that period, requires fewer interventions than other methods of access. Previously to performing the AVF, it is necessary

to ensure a good arterial pulse, the presence of alternative or collateral arterial circulation, and a good caliber vein⁽⁵⁾.

AVF complications are: low blood flow, thrombosis, ischemic hands, infections and aneurisms or pseudo-aneurisms⁽⁷⁻⁸⁾.

The vascular access is of vital importance for the patient with chronic kidney disease, as for all patients without a good vascular access should be considered as a high risk of mortality. Thus, the present study has the objective to identify the necessities of learning for Nursing Professionals while assisting AVF patients, in order to improve the nursing practice for those patients.

METHODS

This is a descriptive transversal study, with data gathered through semi-structured questionnaires at the Hemodialysis Sector of a Base Hospital of Fundação Faculdade Regional de Medicina de São José do Rio Preto-SP, from the period of February to December 2007.

The sample was comprised of 36 nursing professionals (83.7%) from the Nephrology Service of that Hospital, which were allocated to hemodialysis, and agreed to participate of this study, signing the Term of Informed Consent. The research project was approved by the Ethical Committee of Faculdade de Medicina de São José do Rio Preto.

In order to assess the nursing professionals learning needs, a questionnaire was elaborated according to what the literature states as being proper practice to the AVF patient in hemodialysis. The questionnaire included eight closed questions and three opened questions about continued education, difficulties of nursing care and improvement of practices.

Data were analyzed through the percentage of variables, and results are presented in the following pages.

RESULTS

From the 36 interviewees, 75% were female, 80.5% Caucasian, 12.3% Nurses and 87.7% Nursing Practice Professionals. In average, nursing professionals with 10 years experience in the area, 6 years at the hemodialysis center and that had started puncturing AVF after 4 months of service. These professionals were 86.1% self-confident at puncturing the AVF.

Results indicate 100% of nursing professionals have correctly defined the AVF as the anastomosis of an artery with a vein; 41.6% have correctly applied the means of puncturing the AVF. However, 47.2% did not ask if the patient were allergic to adhesive tape. Similarly, another 47.2% correctly executed the AVF curative, after the removal of needles, however 5.5% executed the curative

by vigorously pressing a bandage of gauze for approximately one minute.

From all 36 Nursing Professionals, 66.1% had the knowledge on procedures that should be avoided in the AVF of a patient's arm, but 27.7% did not know they should avoid extracting blood for tests from the arm which the patient has the AVF. All nursing professionals were firstly exposed to puncturing the AVF after 4+ weeks. In case of a bruised AVF 63.8% of nursing professionals knew how to proceed, correctly applying the methods, while 36.1% used just cold curatives before and after the session.

Regarding AVF complications, 44.4% mentioned all possible complications, 72.2% provided correct guidance on proper AVF home care.

AVF nursing difficulties results point that 47.2% refer to puncture in case of patient's difficult vascular access; 19.4% on hemostasis, after the removal of needles, and patient's guidance respectively; and 13.8% when the arm of the AVF was bruised.

Interviewees were questioned if they had participated of continuous education programs, 86.1% said yes and 75% considered the program classes' duration insufficient, suggesting more frequency and focusing on themes such as nursing practice for hemodialysis patients.

After acknowledging such learning needs a nursing assistance protocol was elaborated to guide the procedures for the hemodialysis AVF patient.

DISCUSSION

The analysis of results indicated that the professionals with the right answers, according to the literature, applied nursing procedures properly while assisting AVF patients. During procedures while puncturing the fistula, only 41.6% of nursing professionals correctly applied all methods, and this is due after pondering that 47.2% did not ask patients about them being allergic to adhesive tape. An incomplete kind of assistance is thus observed, given these patients are considered of high risk of mortality as they are in a fragile health situation.

Regarding the knowledge on procedures that should be avoided in the patient's AVF arm, 27.7% of professionals did not know they should avoid extracting blood for test from the AVF arm of a patient, once the patient depends on a good vascular access and this procedure can cause problems of blood flow⁽⁸⁾.

Authors of a study published in 2004 organized a continued improvement program on hemodialysis vascular access, and proved the importance of applying the correct practice of inserting the AVF. The study suggests considering a distance of five centimeter between the arterial and venous introduction, and thus after verifying the economy of proximal vases, they

could be used as anatomic locations for future constructions. The ideal fistula is the one presenting long and superficial galleries, allowing several points of insertion, with good distance between them, good ratio of penetrability and low index of complications⁽⁹⁾.

While taking care of the AVF, 47.2% applied the correct procedure through pressing lightly a gauze bandage on the AVF for approximately five minutes, and making a gauze, and adhesive tape light dressing, after the hemostasis is completed. This procedure is primary to avoid intense bleeding after the hemodialysis, which was confirmed on a study developed in Ribeirão Preto about assisting patients using hemodialysis⁽¹⁰⁾. Furthermore, 5.5% of professionals executed the curative by pressing vigorously compromising the good functioning of the AVF.

Another important aspect is the AVF maturing time; this study verifies that all nursing professionals were firstly exposed to insert an AVF after 4+ weeks. Results were satisfactory, given that the maturing time directly impacts the AVF use cycle.

A study developed in the city of São Paulo with chronic patients in hemodialysis focus on the analysis of AVF functional complications, and results show the AVF defined maturity time (21 days) was related to the cause of pseudo-aneurisms⁽¹¹⁾.

Another study verifies that 80% of fistulas were used after four to five weeks from its performance, which reached significant rates. That time lag was essential for making a successful insertion, and also for improving the blood flow above 300 ml/min in the majority of the hemodialysis sessions, a fact that emphasizes the quality of guidance and good functioning of those definitive accesses⁽¹²⁾.

In case of a bruised AVF 63.8% of nursing professionals applied frequent cold dressings along the 24 hours succeeding the hemodialysis, guided the patient to make warm dressings and use anti-thrombotic cream.

This study also points that 55.5% of nursing professionals did not recognize all possible AVF complications, such as: low blood flow, thrombosis, infections, aneurisms and ischemic hands. This finding was considered quite concerning, once it is fundamental to know all complications for offering a good assistance to patients. The literature verifies the most common complication as the AVF thrombosis, which, generally, occurs due to arterial hypotension⁽⁶⁾.

This study observes 80.5% of professionals knowing about the thrombosis as a likely AVF complication, corroborating with the results of the study, which identified the fistula's thrombosis (80% of cases) as a primary AVF complication, followed by the venous stenosis (20% of cases)⁽¹²⁾.

Referring to nurse professionals providing guidance

to AVF patients, 72.7% provided correct home care guidance.

The study on technical variation of AVF insertion, the buttonhole which consists in recurring insertions in a same point allowing to build a tunnel between the patient skin and the AVF. The formation of that tunnel is made by realizing an insertion from three to four weeks by the same profession, to respect the same angle for the insertion. A limitation for this technique is a patient with a subcutaneous cellular tissue either rich in grass or with excessive skin caused by muscular or weight loss, affecting the formation of the tunnel⁽¹³⁾.

Based on these results and analyzing the necessary care while dealing with an AVF, the share of nursing professional in the search presenting difficulties while taking care of a fistula was significant. An average of 44.3% of nursing professionals presented some difficulty while assisting these patients. When asked if they had participated of continued education programs, 75% of them considered the classes duration insufficient, suggesting they were more frequent and focusing on themes related to nursing assistance for hemodialysis

patients.

In Brazil, 73% of hemodialysis centers do not offer a guidance book for the patients related to the attention towards vascular access, and around 82% do not present any protocol of monitoring the complications that emerged while using the vascular access (12). The AVF patient totally depends on a good venous access for survival, thus nursing professionals need to ensure a proper care to these patients.

CONCLUSION

This study verified nursing professionals present as necessities of learning predominantly: AVF puncture, followed by hemostasis and guidance to AVF patients.

Thus, a protocol was elaborated for orienting the nursing assistance, with the objective of improving the service level to such patients.

Although this study presents only a part of the reality in the nursing assistance being offered to the AVF patient, the necessity of making additional researches involving representative populations was confirmed.

REFERENCES

1. Smeltzer SC, Bare BG. Brunner & Suddarth: tratado de enfermagem médico-cirúrgica. 9a ed. Rio de Janeiro: Guanabara Koogan; 2002. v.3.
2. Schor N, Srougi M. Nefrologia, urologia clínica: no adulto, na infância, no idoso. 6a ed. São Paulo: Sarvier; 1998. p.37-42.
3. Brasil. Sociedade Brasileira de Nefrologia. Censo – janeiro/2006: centro de diálise no Brasil [Internet]. [citado 2007 Out 25]. Disponível em: <<http://www.sbn.org.br/Censo/2006/censoSBN2006.ppt>>.
4. Barros E, Manfro RC, Thomé FS, Gonçalves LFS. Nefrologia: rotinas, diagnóstico e tratamento. 2a.ed. Porto Alegre: Artmed; 1999. p.364-80.
5. Daugirdas JT, Blake PG, Ing TS. Manual de diálise. 3a. ed. Rio de Janeiro: Medsi; 2003.
6. Riella MC. Princípios de nefrologia e distúrbios hidroeletrólíticos. 3a. ed. Rio de Janeiro: Guanabara Koogan; 1996. p.607-16.
7. Fermi MRV. Manual de diálise para enfermagem. Rio de Janeiro: Medsi; 2003. p.44-60.
8. Levine DZ. Cuidados do paciente com doenças renais. São Paulo: Roca; 1998. p.336-47.
9. Linardi F, Bevilacqua JL, Morad JFM, Costa JA. Programa de melhoria continuada em acesso vascular para hemodiálise. J Vasc Bras. 2004;3(3):191-6.
10. Santos MJF. Assistência de enfermagem ao paciente submetido ao tratamento de hemodiálise [tese]. Ribeirão Preto: Centro de Pós-Graduação da Associação de Ensino de Ribeirão Preto; 1994. 92f.
11. Gullo ABM. Complicações funcionais em fístula artério venosa [dissertação]. São Paulo: Escola de Enfermagem da Universidade de São Paulo; 2001. 71f.
12. Nascimento MM, Riella MC. Avaliação de acesso vascular em hemodiálise: um estudo multicêntrico. J Bras Nefrol. 1999;21(1):22-9.
13. Lessi D. Acesso vascular para hemodiálise. Rev Angiol Cir Vasc. 2007;(3):17-25.