THE ROLE OF NURSES IN THE PREVENTION OF PERITONITIS: AN INTEGRATIVE REVIEW

O PAPEL DO ENFERMEIRO NA PREVENÇÃO DE PERITONITE: REVISÃO INTEGRATIVA

ABSTRACT

Objective: examining the national and international scientific evidences about the importance of nurses in the prevention of peritonitis in patients undergoing peritoneal dialysis. Method: a descriptive study of integrative review. A search of the literature was conducted in Lilacs and PubMed, SciELO and virtual library with descriptors: peritoneal dialysis, nurses' performance on prevention of peritonitis, from March 2009 to September 2011. Initially, there were identified 26 articles, of which 12 were selected. For analysis and subsequent synthesis of the articles was used synoptic figure and the presentation of results and discussion were descriptive. Results: there were presented several studies that demonstrated the importance of nurses in controlling peritonitis. Conclusion: becoming increasingly important to the effective participation of nurses in the prevention of peritonitis in patients with terminal progressing to dialysis through peritoneal dialysis chronic kidney disease. Descriptors: Chronic Renal Failure; Peritoneal Dialysis; Prevention; Peritonitis; Nurse.

RESUMO

INTRODUCTION

Among the various diseases affecting the renal parenchyma, it is observed that some, such as septic shock and hypovolemic shock, evolve faster than others that have run their course in a slow, but progressive. Some morbidities such as hypertension and diabetes mellitus, and evil always bring a devastating result, leading to chronic renal failure. In its last stage, when chronic renal failure is then referred to as a terminal, only 10% of nephrons are in perfect working order when the glomerular filtration rate is less than 10 ml/min. Thereafter, it is necessary to introduce a renal replacement therapy such as dialysis or renal transplantation.1

Peritoneal dialysis may be the treatment of choice for patients with renal failure who are not able or do not wish to undergo dialysis or kidney transplant. The choice of the forms of treatment will depend on factors related to clinical conditions and quality of life of patients. The indication of dialysis occurs when conservative treatment is unable to maintain the quality of life of patients. In these cases, peritoneal dialysis is a therapeutic alternative that preserves the residual kidney function, blood pressure control and blood levels and provides hemodynamic stability.2 However, while peritoneal dialysis treatment is good alternative, it can cause severe complications like peritonitis (inflammation of the peritoneum), is important to the effective performance of nurses in prevention.

OBJECTIVE

- Analyzing national and international scientific evidences on the importance of nurses in the prevention of peritonitis in patients undergoing peritoneal dialysis.

METHOD

Article drawn from the dissertation <<Peritoneal dialysis: the role of nurses in preventing peritonitis >>Postgraduate Program in Nursing, Faculty of Medical Sciences of Minas Gerais. Belo Horizonte-MG, Brazil, 2011

This is an integrative review, a survey by the completed and summarized for further analysis of scientific basis applied to a specific topic search, facilitating the practical applicability. To start make this integrative review was prepared by the following question: “Among the contributions produced in the scientific literature, which the available evidence on the importance of nurses in the prevention of peritonitis in patients undergoing peritoneal dialysis?"

With regard to the literature review were performed by database: (Literature Latin American and Caribbean Health Sciences) LilACS (PubMed) U.S. National Library of Medicine Institutes of Health, the SciELO (Scientific Electronic Library Online) and dissertations library of the Faculty of Medical Sciences of Minas Gerais and the central library of the Federal University of Minas Gerais.

The keywords used alone or through intersections were: chronic (LilACS, SciELO) renal impairment, peritoneal dialysis (LilACS), prevention of peritonitis and role of nurses in preventing peritonitis (SciELO), prevention of peritonitis; and nurse (PubMed).

The search was performed from March 2009 to September 2011 for online access using the following inclusion criteria: Addressing the incidence of patients undergoing peritoneal dialysis treatment and who are affected by peritonitis and also the powers and importance of nurses nephrologist which takes care of these patients directly; articles in Spanish and English; temporal delimitation with between 2000 and 2011, with a dissertation 1981 Exclusion criteria were: present only the work of nurses and not another health professional, addressing only the importance in preventing peritonitis and not have abstract presented in some way electronic.

Presentation of the integrative review and synthesis of knowledge: one must consider the information of each article reviewed in a succinct and systematic manner, presenting the evidence found, according to ethical principles referencing authors and year of publication.

Due to the specific characteristics for access to the two selected databases, the strategies used to locate the items were adapted for each, with the guiding question shaft and the inclusion criteria of the integrative review previously established to maintain consistency in search for articles and avoid possible biases.

For the data collection instrument, nurses evaluated by four judges of the Santa Casa de Belo Horizonte-MG, which have experience in the topic and / or assessment instruments textual body was prepared.

For later analysis and synthesis of data items were presented in a synoptic picture that included the following: title of the research; authors' names; intervention study; results; and recommendations / conclusion.
The role of nurses in the prevention of peritonitis... where 12 were chosen, of which six are PubMed, three of SciELO and three of LILACS.

The level of evidence of most studies were classified as level IV, represented by studies with non-experimental design as Cohort (one study) and review studies (nine studies). Two other items are classified as level VI, being expert opinion.

Regarding the type of journal, three articles were published in nursing journal and nine medical journals. Figures 1, 2 and 3 show the articles found in PubMed, SciELO and LILACS.

<table>
<thead>
<tr>
<th>Search title</th>
<th>Authors</th>
<th>Method</th>
<th>Evidence level</th>
<th>Studied intervention</th>
<th>Results</th>
<th>Recommendations/conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preserving renal function in adults with Hypertension and diabetes:</td>
<td>Bakris GL, Williams M, Dworkin L, Elliott WJ, Epstein M, Toto R et al.</td>
<td>Literature review</td>
<td>IV</td>
<td>Evaluation of blood pressure and diabetics and hypertensive</td>
<td>The studies presented an updated guideline to the optimal value of blood pressure that does not present risk of kidney disease in diabetics and hypertensive subjects</td>
<td>This study is important for also demonstrate socioeconomic and cultural barriers that make it difficult to control blood pressure.</td>
</tr>
<tr>
<td>Treatment of advanced renal failure: low-protein diets or timely initiation of dialysis?</td>
<td>Mehrrotra R, Nolph K</td>
<td>Bibliographical review</td>
<td>IV</td>
<td>Treatment of advanced renal failure and the role of low-protein diet</td>
<td>In the US and in Europe there are a large number of malnourished patients undergoing dialytic therapy. However, there are no records of security effectiveness of diet with low protein</td>
<td>Concerns still exist in relation to nutritional security in the patient with renal insufficiency in a given time</td>
</tr>
<tr>
<td>The importance of the peritoneal dialysis nurse</td>
<td>Blake PG</td>
<td>Explanatory research</td>
<td>VI</td>
<td>Importance of nurses in peritoneal dialysis</td>
<td>The professional nurse has an essential role in the prevention of complications during peritoneal dialysis</td>
<td>Searches may be careful in accordance with the centers in which such professionals act.</td>
</tr>
<tr>
<td>Peritoneal dialysis first: rationale</td>
<td>Chaudhary K, Sangha H, Khanna R</td>
<td>Bibliographical review</td>
<td>IV</td>
<td>Directs the various factors contributing to the underutilization of peritoneal dialysis and the fundamentals and strategies to implement 'PD in the first place' and how to keep it</td>
<td>The first concept for peritoneal dialysis implies that, whenever possible, this should be offered as the first dialysis modality. This idealization that PD is held first and second hemodialysis should not be seen as a competition</td>
<td>Peritoneal dialysis (PD) remains underutilized in many countries, including the United States. There are many factors that contribute to this underutilization (for example: mode-related factors in patients of the system). Several of these factors are modifiable, and with a concerted effort to use DP can be increased.</td>
</tr>
</tbody>
</table>
The role of nurses in the prevention of peritonitis...

Training of peritoneal dialysis nurses
Tan PC, Morad Z
Bibliographical review IV
Direct the appropriate training for nurses as the total care of the patient on peritoneal dialysis.

Figure 1. Studies selected by PubMed.

<table>
<thead>
<tr>
<th>Search title</th>
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<th>Results</th>
<th>Recommendations/conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrative review: search method for embedding evidence in health and nursing.</td>
<td>Mendes KDS, Silveira RCP, Galvão CM</td>
<td>Bibliographical review</td>
<td>IV</td>
<td>The integrative review includes the analysis of relevant research to support decision-making and improvement of clinical practice of nurse</td>
<td>The current review has shown that the integrative review offers to professionals from various areas of health access to most relevant results of research</td>
<td>The integrative review offers to professionals from various fields of expertise in health decision-making facilitation, providing critical knowledge.</td>
</tr>
<tr>
<td>Patients with chronic kidney failure: causes of peritoneal dialysis program output</td>
<td>Jacobowski JAD, Borella R, Lautert L</td>
<td>Bibliographical review</td>
<td>IV</td>
<td>Causes that lead to the departure of patients dialysis program</td>
<td>The main reasons of the dialysis program output were death (66.7%), surgical complication (8.3%) and recovery of renal function (8.3%).</td>
<td>Peritoneal dialysis has been an important option for the treatment of individuals with renal insufficiency. However, there are still many barriers to the nurse with regard to continuing education of those individuals.</td>
</tr>
<tr>
<td>The Brazilian census report of dialysis 2010</td>
<td>Sesso R C, RCP, Lopes AA, Thomé FS, Lugon J R, Santos DR</td>
<td>Bibliographical review</td>
<td>IV</td>
<td>Patients with chronic kidney disease who were on dialysis of maintenance</td>
<td>The prevalence of patients on dialysis have introduced progressive increase</td>
<td>The data on indicators of quality of maintenance dialysis have improved compared to 2009 and highlight the importance of the annual census for planning of dialytic assistance.</td>
</tr>
</tbody>
</table>

Figure 2. Studies selected by the SciELO database.

<table>
<thead>
<tr>
<th>Search title</th>
<th>Authors</th>
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<th>Evidence level</th>
<th>Studied intervention</th>
<th>Results</th>
<th>Recommendations/conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catheter-related infections: a challenge in CAPD</td>
<td>Thome F</td>
<td>Explanatory research</td>
<td>VI</td>
<td>The occurrence of infections associated with CAPD</td>
<td>Becomes important preventive measures such as standardization of treatment and monitoring of results</td>
<td>To minimize the occurrence of infections associated with CAPD, catheter removal rates and peritonitis must be regularly calculated relating them to catheter-associated infections</td>
</tr>
<tr>
<td>Update on dialysis: current treatment of peritonitis in continuous ambulatory peritoneal dialysis</td>
<td>Barrettti P, Motelli AC, Cunha MRLS, Caramori JCT</td>
<td>Bibliographical review</td>
<td>IV</td>
<td>The treatment of peritonitis in CAPD as a fundamental part of the clinical approach of patients treated by this method, the</td>
<td>The analysis of the results shows that associations between Vancomycin and aminoglycosode are the most used. However, it is important that each treatment</td>
<td>Even being unquestionable validity of the recommendations of the procedures established in consensus, is unfeasible the local characteristics study of sensitivity of microorganisms</td>
</tr>
</tbody>
</table>
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Peritoneal dialysis: patient education based on the theory of self-care

Figueiredo AE, Kroth LV, Lopes MH

Bibliographical review

IV

frequency and severity of this complication center constitutes a basis for the establishment of an appropriate conduct.

Enable the patient to the self-care through the education and training on the part of the nursing staff

Patient training for DP uses the concepts of 3 learning theories: cognitive, behavioral and humanistic.

The technique of self-care can be used for education of chronic kidney patients effectively and safely, providing better quality of life and independence

Chronic renal failure is considered worldwide as a public health problem mainly for having as main causes extremely prevalent disease that is not diagnosed and treated properly, including: diabetes mellitus, hypertension and glomerulonephritis. The main risk factors for diseases that lead to chronic renal failure are: stress, sedentary lifestyle, obesity and repetitive urinary infections and not adequately treated. As chronic renal failure progresses, some symptoms are triggered, such as fatigue, tiredness, anorexia, weight loss, itching, nausea, insomnia and impaired mental status. According to Figure 4, the progression of renal disease is represented in three stages, namely: diminished renal reserve, renal failure and end-stage renal disease.

Step 1
Decreased renal reserve: characterized by loss of 40 to 75% of the function of the nephron. In general, the patient does not present symptoms because the remaining nephrons perform the normal functions of the kidney.

Step 2
Renal insufficiency: occurs when 75 to 90% of the function of the nephron has been lost. At that point, creatinine and serum urea increase, the kidney loses its ability to concentrate urine and anemia develops. The patient may report polyuria and nocturia.

Step 3
Kidney disease in terminal stage: the end-stage chronic renal failure happens when there are less than 10% of the nephrons functioning normally. All regulatory functions, excretory and normal kidney hormone are severely disadvantaged. The PAWAN is evidenced by elevated serum levels of urea and creatinine and electrolyte imbalances. When the patient reaches this point, dialysis is usually indicated. Many of the symptoms of uremia are reversible with dialysis.

Figure 4. Stages of chronic kidney disease.

When diagnosed with ESRD, a conservative or dialysis treatment as early as possible should be imposed; otherwise the occurrence of complications can lead to death. Therapies for this disease are divided into three groups: hemodialysis, peritoneal dialysis and renal transplantation. Their main objective remove fluid and uremic waste products from the body, when the original kidneys are unable to do so. According to statistics from the census conducted in 2004/2005, underwent dialysis therapy a total of 65,121 patients during this period. In addition, this therapy classify the data according to each type of dialysis as shown in Figure 5.

Figure 5 shows the number of patients undergoing different dialysis modalities in the year 2004/2005 in Brazil.
During peritoneal dialysis, residual renal function is preserved, facilitating the control of blood pressure levels and providing hemodynamic stability. This process of blood filtration is the removal of excess water and substances that are no longer utilized by the body and should be eliminated through the urine; the uremic toxins. This type of treatment uses the peritoneal membrane to filter blood. Thus, through a catheter located in the intra-abdominal region, more specifically in the region near the navel, a liquid is infused called peritoneal dialysis solution.11

The peritoneum is used as a filtration membrane and the blood clearance ambulatory peritoneal dialysis, or allows passage of substances from one side to the other and measures approximately 22,000 cm². This process occurs through diffusion and osmosis. The presence of glucose in the baths acts as an osmotic agent, that is, removes excess fluids from the patient by ultrafiltration. To start this treatment, a catheter is implanted in the peritoneal cavity via a surgical procedure. This route of peritoneal access is permanent and through approximately two liters of liquid previously prepared and sterile, which is supplied in flexible non-toxic plastic bags and will be introduced. This liquid remains six to eight hours in the abdominal cavity and is changed three to four times a day, seven days a week. Hence the name continuous dialysis.4

**Peritoneal dialysis**

Different treatment modalities can be performed by peritoneal dialysis: intermittent peritoneal dialysis, continuous ambulatory peritoneal dialysis and automated peritoneal dialysis. The decision by the method must be shared by the family, because knowledge is restricted to the treatment to your needs. They need to be exposed to the client and family types of dialysis treatment, its advantages and disadvantages, and its consequences.11 Thus, patients susceptible to rapid water, electrolyte and metabolic changes that occur during hemodialysis have fewer problems with a smaller speed of peritoneal dialysis.12

In continuous ambulatory peritoneal dialysis usually three exchanges are held during the day and before bedtime, manually by the patient properly trained or third parties also previously trained to perform the treatment.8 Have suitable for most patients on dialysis, automated peritoneal dialysis exchange is to made by a machine known as a cycler that performs the process at night and / or day. This method allows the patient greater freedom to carry out their usual activities during the day.7

Intermittently, peritoneal dialysis is a treatment for a period of 24 to 48 hours, in a hospital environment, changes with every one to two hours, twice per week (40 to 60 liters). This method of treatment is not very used because it is used only in some cases of acute renal failure or when the patient is no access via dialysis or undergoing implantation of catheter or arteriovenous fistula and / or implantation of a catheter for dialysis peritoneal. It is also seen that in the period between dialyses, the abdomen is dry. Thus, this treatment is indicated for patients with high peritoneal membrane permeability and residual renal function significantly.10

The biggest problem for patients on peritoneal dialysis has always been the occurrence of peritonitis.13 The dialysis is defined as the presence of cloudy dialysate, accompanied by abdominal and / or hyperthermia pain. Where one of these signals occurs alone, the diagnosis may be executed by the concomitant presence of peritoneal fluid hypercellularity, more than 100...
leukocytes per cubic meter, with at least 50% polymorphonuclear cells or organisms by detecting the direct microbiological examination or culture.14

Staphylococcus aureus and Staphylococcus epidermidis remain the most common gram-positive organisms responsible for peritonitis, although rates each have decreased. Pseudomonas aeruginosa, Escherichia coli and Klebsiella species are the most common causes of peritonitis caused by gram-positive.6

Given the damage caused by peritonitis patient, having as a consequence the loss of this pathway for dialysis, it is essential to effective participation of nurses in relation to the prevention of this infection, working not only with patients but also with family and caregiver, because that becomes co-responsible for successful treatment.9 Health education is a major component of health promotion. In the first instance, we need to nephrology nurses enjoy the time during care, however short it is, to get involved with health education in order to create a space for interaction between professionals and clients.10 None relationship is most essential to the success of therapy than between nurse and patient.15

The importance of nurses in peritoneal dialysis

The nurse, among health professionals, is that acts of nearest and steady manner with patients.5 The interaction between nurse and patient on peritoneal dialysis will last for many years and sometimes be quite intense.16 Thus, the development of educational practices, the nurse must have, besides the scientific rationale and technical competence, knowledge of the aspects that take into account the feelings, needs and desires of the patient under his guidance. In this sense, not just a flexible teaching material that does not promote questioning and not cause internal motivation to change. Certainly, it is necessary that openness to dialogue, the possibility of perceiving the other as a unique, albeit with common experiences with his fellow man. The following ideas do understand the importance of this sharing, as no one gets anywhere alone.5

Nursing actions are responsible for the entire process that guides the dialysis. It's up to him, too, settle doubts experienced by patients and carers involved in the process, especially in relation to prevention of peritonitis, which is usually the cause of discontinuation of treatment, the search for another form of therapy is required, which often harm the general condition, triggering distress, suffering or harm to their health.

Considering the importance of prevention of peritonitis, the nurse must be able to provide the total patient understanding on the implementation of the correct technique, using appropriate language taking into account their cultural level and understanding, in order that all the process is carried out effectively. Thus, it becomes important the role of the nurse in the performance of the direct patient care undergoing dialysis, which influence positively regarding prevention of infections arising from such therapy.16

The nurse is vital to assess the patient's condition and their learning, it is he who will explain the technique of trade exchanges, provide guidance and monitor the operation of the dialysis method. In addition, he is the one who accompanies and assists the patient during catheter insertion in the operating room; performs during Break in monitoring, always attentive to the aspect of dressing fluid extravasation, edema, uremic symptoms and especially the patient's complaints (pain in the drainage and infusion). The nurse also participates in the evolution of the patient, collecting information for the database and making the records and providing the necessary materials. From the home view, it can carry out regular visits to monitor the patient, clarifying doubts and strengthening care to be developed. Thus, the role of nurses can also be seen as a constant educator, as well as training for patients and families, conducts periodic refresher courses and participates in reviews by the doctor.17

According to these functions, it is important for nurses to assess the degree of understanding of each patient. Thus, patients are taught according to their own learning abilities and level of understanding. And the quality of information to be passed on and taught should reach only the time, as much as they can handle without feeling uncomfortable or become overwhelmed and fearful about the dialysis method.3

Nurses working with peritoneal dialysis, as well as having technical skill, must also faithfully meet all renal substitutive methods, have good teaching and communication ability, be patient, and have good judgment, consistency, flexibility and good mood to take care of these patients, effectively and with quality.18

The role of nurses in the prevention of peritonitis...

Final Remarks

Chronic renal failure is considered as a public health problem worldwide, and increasingly prevalent diseases to be caused by extremely present in current society,
which, somehow, makes the diagnosis more difficult. It is well-characterized by a progressive loss and generally irreversible renal clearance occurring accumulation of metabolic waste products in the blood.

Some individuals may experience only mild symptoms and discreet, despite the increase in the concentration of urea in your body and emphasizes further that in most cases, some patients remain largely asymptomatic until they have lost at least half of your kidney function, when begins to show signs of fatigue, tiredness, anorexia, weight loss, itching, nausea, insomnia and impaired mental state.

How to choose peritoneal dialysis, there are no reports of disagreement by the authors in the articles surveyed. All explained the favor of peritoneal dialysis is a treatment option that allows the patient greater flexibility to perform activities of daily living (ADL) and lower risk of developing during therapy, hemodynamic changes. The biggest problem caused by peritoneal dialysis is the occurrence of peritonitis, which are characterized by the presence of cloudy dialysate accompanied by abdominal pain and / or hyperthermia.

For the prevention of peritonitis, health education is a major component of health promotion, emphasizing the need to create a space for interaction between healthcare professionals and users. The importance of the nurse is highlighted in their educational practices and in relation to the need to be facing the emotional aspect of the patient, in addition to being qualified technical and scientifically, opening space for dialogue and the exchange of knowledge and experiences between professionals and health, which operates the closest and constant manner with patients.

From the moment the nurse establishes trust with the patient and the caregiver is possible to broadcast safety and the adherence process becomes more reliable and generates less chance of failure. However, the nurse can work effectively with the patient and the caregiver, opening up space for therapy guidance, clarification and appropriate way to perform the technique of peritoneal dialysis, understanding the handling of materials and equipment and aseptic rigor, and other questions that may arise during the entire process.

With the completion of this integrative review, it was found that it becomes increasingly important to effective participation of nurses in the prevention of peritonitis in patients with terminal chronic progressing to dialysis through peritoneal dialysis kidney disease. The influence of nurses in therapy, through training and continuing education of the patient and the caregiver, it is of great value, since the whole process is your responsibility. The living conditions of the patient will suffer interference and changes due to its guidelines in order to minimize harm to their health, especially in relation to infectious processes due to this type of treatment.

The role of nurses in the prevention of peritonitis...

CONCLUSION

The success of peritoneal dialysis depends on involvement by both the patient and their caregiver and health team involved in therapy, the nurse responsible for guide all actions of the process.

Thereby, an integrative review addressing the importance of professional nurses in the care in preventing the incidence of peritonitis in patients undergoing renal dialysis treatment inadequate will provide enrichment and an improvement in clinical approach for active nurses, favoring therefore reducing the rates of peritonitis.

REFERENCES


5. Blake PG. The importance of the peritoneal dialysis nurse. Perit Dial Int [Internet]. 2006

English/Portuguese

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