

IMPACT OF NURSING CARE AND THE RELATIONSHIP BETWEEN PERITONITIS AND RENAL REPLACEMENT THERAPY IN A SECOND LEVEL HOSPITAL

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ABSTRACT: *The objective of this research work is to evaluate the procedure for changing the peritoneal dialysis bag, by the nursing staff associated with nosocomial peritonitis of the Regional General Hospital No.25 IMSS. The IMSS gives 68% attention to patients with a kidney disease in which the Regional General Hospital No. 25 of the Mexican Social Security Institute, currently serves 456 beneficiaries of which 374 are in a Peritoneal Dialysis modality Continuous Ambulatory (DPCA) and 82 in Automated Peritoneal Dialysis (DPA). Renal insufficiency according to its high increase in the Mexican population generates large amounts of health expenditure, the different institutions that provide health, increase the need for nurses to be trained and provide quality in their procedures to reduce complications, dialysis. It is the treatment of first choice and as a result its main disadvantage is peritonitis due to a bad use in the technique and lack of adherence to treatment, which increases hospitalization and mortality. A qualitative study was conducted, with a transversal, observational, descriptive and prospective design; by the nursing staff of the nephrology, internal medicine and emergency department of the morning and evening shifts. The sample is of sixty auxiliary and general nurses with a period of five months, where the data will be collected in two stages and subsequently analyzed through indicators.*

KEYWORDS: Peritoneal dialysis, renal failure, peritonitis

INTRODUCTION

In addition to meeting the needs and expectations of the patient, care for the nursing professional, when developed, reaches a state of achievement that benefits all the senses of the person who is treated and develops in an environment of trust and guarantee of quality that no longer involves the patient of the already prevalent disease situations for which they enter the hospital. (Hernández, 2014). Nursing is currently considered to be a professional discipline that focuses on the care of the person, be it the individual, the family or the community and the “caring actor”, the practice of nursing goes beyond routine tasks and

requires intellectual resources and requires intuition for decision making that corresponds to the needs of the patient.

These cares are forced into care, and appear to be harmless; However, performing them incorrectly or not performing them produces a damage or adverse event, which can be of low, medium and high impact for the clinical evolution of the patient. An adverse event is “an unexpected event not related to the natural history of the disease, as a result of medical attention (hospital area that contributes to the recovery of the patient) that produces serious physical or psychological damage, risk of death or death of the patient ”and its harmful effects related to negligence, which could mostly be avoided. (Ortega, 2014).

In Mexico, the annual rate of dialysis patients is 154.6 per million inhabitants. The quality of life varies based on the functionality of the patients, this score is of great importance to evaluate the dialysis time as a factor that modifies the quality of life, as well as other related variables. In renal disease there is deterioration in the quality of life of patients, this due to the irreversible loss of renal function, documented with a glomerular filtration rate <15 ml / min, therefore requires trained nurses to provide quality in their procedures to reduce complications. (Méndez, J. 2014)

Dialysis is the specialized therapeutic procedure that uses as a physical-chemical principle the passive diffusion of water and solutes from the blood, through the Peritoneal membrane and that is used in the treatment of renal insufficiency, this corrects some symptoms of the patient causing lifestyle changes and is the first choice treatment renal replacement therapy. (Lerma, 2014)

Table 1. Most common causes of chronic kidney disease in adults

Diabetes mellitus 49%	Interstitial tubule nephropathy : • Chronic pyelonephritis
Hypertension 20%	Collagenopathies: • Systemic lupus erythematosus
Glomerulopathies 17%	Congenital malformations
Polycystic kidney disease 5%	Kidney trauma
Obstructive processes • Urinary lithiasis • Prostate growth • Tumors, Cervical cancer.	Toxics: • Poisoning by lead, lithium, mercury, cocaine.
Chronic intake of anti-inflammatory analgesics	Pregnancy arterial hypertension (preeclampsia)

Robert Popovich and Jack Moncrief in the year 1975 marked the beginning of the era of clinical peritoneal dialysis in the world was a transcendent fact which described a technique

that called peritoneal equilibrium defining it as the continuous presence (24 hours 7 days after week) of dialysis solution in peritoneal cavity. (Méndez, 2014). At first, the straight spike connection system was used, the patient had to carry a bag permanently, the beginning of the Ambulatory Continuous Peritoneal Dialysis (DPCA), all the systems were non-disconnected, the patients carried the line and the bag continuously with the discomfort and lack of aesthetics that this implied.

In recent years, the “Y” systems have put an advance in technology, facilitating the comfort and reduction of the spare parts until the “Y” connection system was introduced, where the distal portion of the catheter connection ends in “Y”, with branch connected to a bag with new dialysis fluid and the other to an empty bag. This allowed to wash before draining the infusion cavity of the new liquid, with disconnection of the system between each exchange. (Méndez, 2014)

In 2007, an observational research work was carried out, based on an analysis of the situation regarding the development of peritoneal dialysis exchange with the modality of twin bag and Ben Y system carried out in the month of June and July, by the nurse who works in the nephrology service of the national institute of cardiology Ignacio Chávez (Mexico) and who performed the procedure in the morning and evening shifts.

The results obtained from this research in the twin bag system were 93.5% efficiency per case and the ben Y system 90.8% efficiency rate per case. This allowed establishing the quality standard and knowing the level of compliance with which the technique is performed by the nurse. (Méndez, 2014). To be able to talk about the procedure of connection and change of peritoneal dialysis bag (set of activities carried out by the nursing professional to perform the change of the peritoneal dialysis bag in an effective and safe way for the patient with replacement treatment of the function renal); we must know that the physiology of the space of the peritoneal cavity can be artificially expanded by the administration of 2 or more liters of liquid in adults and 35-50 ml / kg in children, with this we get a therapeutic system, which we call peritoneal dialysis (PD), formed by four basic components: blood, peritoneal membrane, dialysis fluid and lymphatic drainage.

The processes that take place in the physiology of peritoneal dialysis, is the elimination of solutes and water. (Lerma, 2014) Its objectives are the extraction of liquids and waste products from the metabolism of the cells that the kidney cannot eliminate and make the change of peritoneal dialysis bags in a safe way, complying with the rules of asepsis and antisepsis to avoid infections to the peritoneum.

Beginning.

- Diffusion: It is the process in which the transfer of molecules from an area of high concentration is displaced to one of lower concentration.
- Osmosis: It is the process that tends to balance the concentration of molecules of a solute.
- Asepsis: It is the absence of microorganisms that can cause an antiseptic disease.

- Antisepsis: It is the use of chemical substances to inhibit the number of microorganisms in living skin, mucous membranes or open tissues at a level in which it does not generate infections.

Relative contraindications

- Presence of leakage of peritoneal fluid through the exit site.
- Evidence of physical obstruction of the catheter.
- Abdominal abscess.
- Important points.

The aseptic and antiseptic measures, reduce the risk of infection since the peritoneum is highly vascularized, which favors the presence of infections, decreasing the useful life of the catheter for a maximum time of 3 years and six months for the transfer line.

The functionality of the catheter is assessed through an adequate balance, so it is necessary to accurately measure the volume drained. (Hernández, Ortega, 2014).

More frequent complications in peritoneal dialysis.

Non-infectious

- Hydroelectrolytics and acid-base:
- Hypovolemia
- Hypervolemia
- Sodium disorders
- Hypernatremia
- Potassium disorders

Metabolic:

- Alteration of carbohydrates
- Altered lipid metabolism
- Alterations in protein metabolism
- Nutritional alterations, for example: Anemia

Mechanics:

- Hernias at the level of the abdominal wall
- Liquid leaks at the subcutaneous level
- Intestinal obstructions

Infectious

- Outlet Infections
- Subcutaneous tunnel infections
- Peritonitis (López, 2012)

MATERIALS AND METHODS

Type of study: Quantitative

Study design: Transversal, observational, descriptive and prospective

Study universe: IMSS Regional General Hospital No. 25

Population under study: nursing staff of the nephrology, internal medicine and emergency department of the Regional General Hospital No. 25. Sample: 95 patients were followed for 5 months, the sample was obtained using the formula for calculating the sample size for finite populations, which had a 95% reliability and .5 margin of error.

Sampling: simple random

Inclusion criteria. Nursing staff of the Regional General Hospital No. 25 of the morning and evening shift of the emergency department, nephrology and internal medicine who perform the procedure of changing the peritoneal dialysis bag.

Exclusion criteria. Nursing staff of the Regional General Hospital No. 25 of the night shift that performs the procedure of changing the peritoneal dialysis bag.

Elimination criteria. Nursing staff of the Regional General Hospital No. 25 that did not adequately answer the data collection formats

The Period of June 30 - November 30, 2018.

Analysis of data

The data analysis was carried out through an evaluation efficiency indicator, using the “Audit instrument for each connection system, 1) Twin bag and 2) Ben Y bag”, validated by the Nursing Department and the Head of Quality and Care of the National Institute of Cardiology, Mexico, which has an internal reliability of .81 Cronbach's alpha.

The instrument to evaluate for the “Twin Bag” system consists of 11 reagents, with a maximum score of 16 points, for the “Ben Y” system, contains 13 reagents with a maximum score of 19 points.

Once the results were obtained, the results were analyzed by means of descriptive statistics in order to obtain the Global Efficiency Index (IEG) obtained by means of the following formula:

Sum of activities carried out efficiently

IEG = Expected sum of total established activities

Once the IEG was obtained, the quality level of the peritoneal dialysis procedure and its association with the development of peritonitis was determined, for this analysis the quality criteria of the “National Quality Management of Health Services in Bogotá were used, Columbia and the Donabedian Foundation”, adapting them to the nursing care system that was evaluated.

The levels evaluated are described below.

Level of excellence: it is assigned to the overall performance, in this case the nursing staff performs the entire process sequentially and reaches a quality standard between 91 and 100%

Significant level of compliance: it is the one that is acceptable, given that the nursing staff meets most of the process requirements, and reaches a quality standard between 85 and 90%.

Partial compliance level: the nursing staff meets some process requirements, and reaches a quality standard between 75 and 84%

Minimum compliance level: assigned when nursing meets few of the process requirements, and the quality standard is between 70 and 74%.

Non-compliance level: indicates that the nursing staff does not meet most of the process requirements, and its quality standard is below 70%.

Once compliance levels were obtained, association measures (Relative Risk) were performed to relate the level of compliance and its relation to peritonitis associated with peritoneal dialysis.

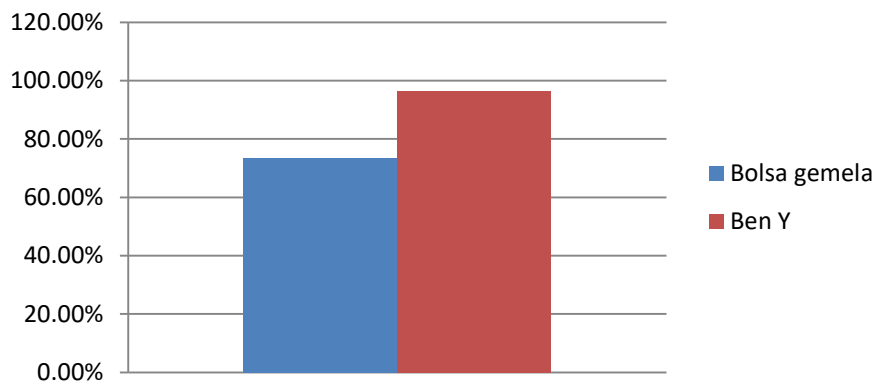
RESULTS

The incidence of peritonitis during follow-up was 1.44 episodes / patient / year. 34.6% of patients in the PD program developed at least one episode of peritonitis during the study. Eighty-three percent of the total patients remained in the PD program during the entire study period, the remainder abandoned due to death or detachment from treatment. The presence of peritonitis was associated with the time spent in the PD technique, since a person who has more than 5 months in PD in a hospital is 4.2 times more likely to develop peritonitis than one who has less time.

When doing a multivariate analysis In the analysis of ROC curves, these factors predicted the incidence of peritonitis with a value of 0.84 (95% CI: 0.726-0.954).

Regarding the incidence of peritonitis according to the use of the “Twin Bag” and the “Ben Y”, the results showed that “Ben Y” significantly increased the number of positive cultures in patients taking a peritonitis, compared with the “Twin Bag” (Twin Bag: 73.55% of positive cultures vs Ben Y: 96.55%; $p = 0.0076$). (Figure 1).

Figure 1. Proportion of positive peritoneal fluid cultures in patients undergoing peritonitis, comparing the twin pocket and Ben Y.



Source: Crop results, September 2019.

Regarding the IEG, the results showed that only 33% of nursing staff have a level of excellence, 22% acceptable level, significant compliance 24%, partial 0%, minimum 21% and non-compliance 0%.

When making the relationship between the level of quality of compliance by the nursing staff during the procedure of changing the peritoneal dialysis bag and its association with peritonitis, obtaining Relative Risk (RR), the results showed that a nurse who has a level of

excellence, 4.6 times the risk that a patient develops peritonitis decreases, in contrast, a nurse who has a significant level, patients have 2.5 times more risk of peritonitis associated with this procedure.

DISCUSSION

Peritonitis is one of the most important and frequent complications of PD and, despite the great reduction in their overall rates, it remains the first cause of transferring patients to hemodialysis. In addition to the morbidity associated with these infections, mortality is also associated with the latter, and depends mainly on the causative germ, standing at figures close to 5%.

Studies in South America on peritonitis and its association with PD, show a peritonitis rate of 0.82 episodes / patient-year (Morales and Col, 2015). Gadola 2013, in the Uruguayan registry of 10 years of follow-up, reported a rate of 0.47 peritonitis / patient-year and Santoianien 2015, reported in Argentina a rate of 0.87 peritonitis / patient-year in 15 years of follow-up. In the present study the rate is much higher than that of the previous authors, in this sense it may be necessary to follow up, considering that the study was 6 months and this period can be a confusing factor, however it is to call Attention the figure of 1.44 peritonitis / patient / year.

There are no studies that directly relate to the type of peritoneal dialysis bag and its association with peritonitis, however, during follow-up through a cohort study, it was found that the incidence of peritonitis is higher for the Ben bag And that for the Twin Bag. It is important to carry out more studies in this regard to assess what is the cause of the greater incidence in one or the other, starting from the technique used and training staff. The sense of compliance with the process, the investigation showed that the level of compliance is inversely proportional to the development of peritonitis in patients undergoing peritoneal dialysis, this study agrees with those performed by Hernández 2016, where it establishes that the level of knowledge is related to the level of compliance with the processes performed in nursing.

CONCLUSIONS

It is important to note that the study showed that the level of compliance with nursing processes, are of great importance to prevent infections associated with health practice, as the nurse is the health professional who performs the necessary care and therapeutic procedures to patient recovery Actions such as handwashing according to the recommendations of the world health organization, the use of standard isolation and the monitoring of peritoneal dialysis processes, are necessary for the prevention of complications.

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