Open Minds

Internacional Journal

ISSN 2675-5157 vol. 1, n. 3, 2025

ARTICLE 4

Acceptance date: 17/11/2025

FACTORS ASSOCIATED WITH PERITONEAL DIALYSIS CATHETER DYSFUNCTION

Betty Sarabia-Alcocer.
Campeche, Campeche, Mexico.
Autonomous University of Campeche, Mexico
San Francisco de Campeche, Campeche, Mexico.

Pedro Gerbacio Canul Rodríguez.
Autonomous University of Campeche, Mexico.
San Francisco de Campeche, Campeche, Mexico

Josefina Graciela Ancona-León
Autonomous University of Campeche, Mexico.
San Francisco de Campeche, Campeche, Mexico.
https://orcid.org/0000-0001-5396-3247

Ildefonso Velázquez-Sarabia.
Amerimed Mérida Hospital
San Francisco de Campeche, Campeche, Mexico.
https://orcid.org/0009-0000-4484-8220

Gonzalo Abdiel Canul Canché
Surgeon at Medical Life.
San Francisco de Campeche, Campeche, Mexico

Abstract: Peritoneal dialysis is a way to remove waste products from the blood. It is a treatment for kidney failure, which is a disease in which the kidneys can no longer filter the blood well enough. **OBJECTIVE.** To identify the factors associated with peritoneal dialysis catheter dysfunction. **MATERIALS AND METHODS.**A descriptive, cross-sectional, retrospective, observational study was conducted, from which 80 catheter removals were obtained, of which only 64 met the inclusion criteria. **RESULTS.** 31.25% corresponded to peritonitis and 17.18% to adhesions s in the abdominal cavity, catheter obstruction 15. 65%, catheter migration 12.5%, kinking 6.2%, program change 6.2%, frozen cavity 4.68%, other diagnoses 4.68%, program exit 1.56%. **CONCLUSION.** The population must be better educated and patients must be closely monitored, especially those in the Continuous Ambulatory Peritoneal Dialysis (CAPD) program, as this is the population most affected.

Keywords— Associated factors, dysfunction, catheter, peritoneal dialysis.

Introduction

Chronic renal failure is one of the main chronic degenerative diseases affecting the world's population. Its most significant impact is its slow, progressive, and irreversible damage until the glomerular filtration rate falls below 15 ml/min, preventing it from fulfilling its function of purifying metabolic products and derivatives, causing digestive, hematological, cardiovascular, neurological, and metabolic disorders. (1)

Currently, according to the 2000 National Health Survey, 10.9% of the adult population in Mexico reported having had a previous medical diagnosis of kidney disease, with the northern and central states of the country having the highest concentrations of the affected population. (2)

There are many causes that lead to the development of CRF, and they depend not only on age, but also on underlying pathologies and gender. It is known that type 2 diabetes mellitus, with its diabetic nephropathy, is the leading cause of failure, presenting as a direct cause in 40% of nephropathies diagnosed in the US (1). In Mexico, this population is estimated at 40,000 to 50,000 patients, with an annual increase of 11%, and 80% of these patients are concentrated in our institution. (3)

Of the total number of kidney patients in our country, 20 to 25% are undergoing hemodialysis treatment and the remaining 80% use some form of peritoneal dialysis. This population is concentrated between the IMSS and the ISSSTE, with an annual h l cost of $103,824 pesos per patient undergoing peritoneal dialysis. By the end of this year, the dialysis-dependent nephropathic population is expected to reach 106,246 people, which will increase the cost of consumables to $14,158,000 pesos. (3)

In 1988, the Peritoneal Dialysis Program was launched nationwide by the IMSS, offering different types of renal replacement therapies such as Continuous Ambulatory Peritoneal Dialysis (CAPD), Intermittent Peritoneal Dialysis (IPD), Hemodialysis (HD), and the main goal of renal replacement therapies: kidney transplantation. (4)

Peritoneal dialysis (PD) is a technique whereby a solution of controlled composition and osmolarity is infused into the pe-

ritoneal cavity. It is left in place for a period of time, during which water and solutes pass through the capillaries into the dialysis fluid via a biological membrane, the peritoneum, establishing an equilibrium between the plasma and the peritoneal cavity.

This system, which provides independence and freedom to the patient, accounts for around 14% of treatments worldwide and 11.4% in Europe.

The first dialysis program in Mexico began in the 1970s based on the description of Continuous Ambulatory Peritoneal Dialysis (CAPD) pioneered in the country by the Mexican Social Security Institute (IMSS). By the 1990s, more than 15,000 patients throughout the Republic had been integrated into this therapy. [5]

Description of the Method

A descriptive, cross-sectional, retrospective, and observational study was conducted, from which 80 catheter removals were obtained, of which only 64 met the inclusion criteria. The following were investigated: age, gender, dialysis program, cause of catheter removal, intraoperative findings, number of procedures in the same patient, and the time interval between them and the month in which the most procedures were performed. The population included all patients enrolled in the Dialysis Program during the period from July 2024 to June 2025. The results obtained were calculated using measures of central tendency.

PROCEDURE FOR INFORMATION GATHERING

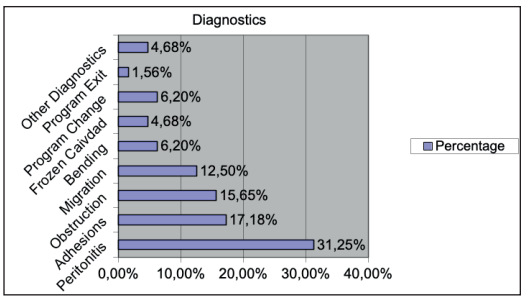
- After acceptance of the protocol by the Local Research Committee:
- The surgical records that met the inclusion criteria for this study were selected.
- The diagnoses and intraoperative findings in the surgical procedure sheet were reviewed.
- A correlation was made between the selected patients and the Peritoneal Dialysis program list to determine which modality they were in.
- Statistical analysis was then performed to draw conclusions.

Results

During the period from July 2023 to June 2024, a total of 80 peritoneal dialysis catheter removals were performed, of which 80% (64) of the cases met the inclusion criteria; these were performed in 20% (47) of the 235 patients included in the Dialysis Program.

Of all cases, 57.44% (27) were men and 45.55% (20) were women, with a mean age of 59 years.

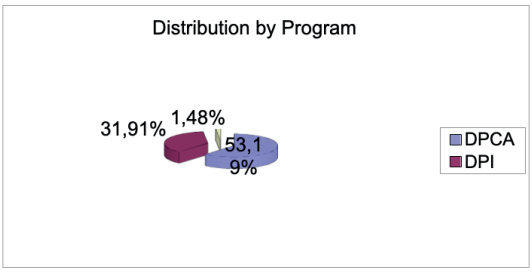
Of the diagnoses used as criteria for catheter removal, 31.25% (20) corresponded to peritonitis and 17.18% (11) to adhesions in the abdominal cavity, catheter obstruction 15.65% (10), catheter migration 12. 5% (8), kinking 6.2% (4), program change 6.2% (4), frozen cavity 4.68% (3), other diagnoses 4.68% (3), program exit 1.56% (1). Graph 1



Graph 1. Diagnoses for removal of peritoneal dialysis catheter

Source: Clinical record

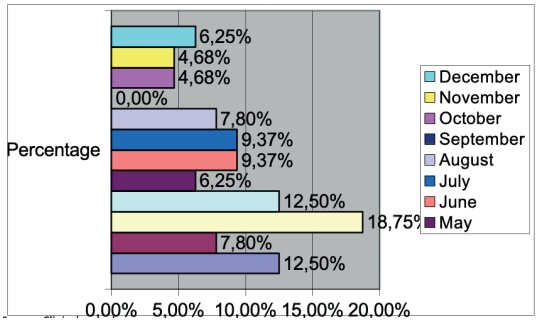
In relation to the dialysis program used, it was found that 53.19% (25) of cases were in the Continuous Ambulatory Peritoneal Dialysis (CAPD) program, 31.91% (15) were on Intermittent Peritoneal Dialysis (IPD), and 1.48% (7) were on Ambulatory Peritoneal Dialysis (APD). Graph 2.



Graph 2. Distribution of cases by dialysis program.

Source: Clinical Records

The month with the highest number of procedures was March, with 18.75% (12) of the procedures. Graph 3.



Graph 3. Distribution by month.

Source: Clinical records.

With regard to the number of withdrawals per patient, it was found that 71% (33) had only 1 withdrawal during the year, 20% (9) had 2, 7% (3) had 3, and only 2% (1) had 4 withdrawals during the year.

Conclusions

This study concludes that the main cause of Tenckhoff catheter removal in patients included in the peritoneal dialysis program is peritonitis, accounting for 31.25%. During 2016, 80 Tenckhoff catheter removals were performed, of which 80% met the inclusion criteria, being performed in 20% of the patients in the Dialysis Program.

The dialysis program with the highest number of patients undergoing removal was CAPD, with 53.19%.

The gender with the highest number of removals was male, with 57.44%. The average age of the patients was 59 years.

18.75% of the procedures were performed in March.

Regarding the number of withdrawals per patient, it was found that 71% had only one withdrawal during the year, 20% had two, 7% had three, and only 2% had four withdrawals during the year.

References

1 Pérez Martínez, J. Insuficiencia Renal Crónica: Revisión y tratamiento conservador. ARCH MED Vol 1, No. 3 Año 2005. España.

2.- Encuesta Nacional de Salud 2000. Secretaría de Salud.

3.- www.insp.mx/portal/centros/ciss/nls/coam/forum/parte4.html

4.- Villafaña Guiza, L. Criterios Técnico Médico para el tratamiento dialítico de los pacientes con Insuficiencia Renal Crónica en Etapa Avanzada. Coordinación de Prestaciones Médicas, IMSS. 1998. México.

5.- Lamberth Hall Calvin, Lozano Cortes Karina. Prevalencia y factores de resigo para peritonitis temprana en pacientes en DPCA del HGZ # 33. Revista de Salud Pública y Nutrición. No. 8 2005 (http://www.respyn.uanl.mx/especiales/2005/ee-08-2005/documentos/45.htm)

6.- W. Meyer, Timothy Uremia. N. Engl J Med 2007; 1316-25

7.- Rosales Montes, Eduardo. Estudio comparativo de dos técnicas de colección de catéter de diálisis peritoneal: abierta y laparoscópica. Rev Sanid Militn Mex 2006; 60 (3) Mayo-Junio; 176-180.