International Journal of
Health Science

ISSN 2764-0159 vol. 5, n. 33, 2025

ARTICLE

Acceptance date: 28/10/2025

Date submitted: 10/25/2025

COMPARATIVE STUDY OF CAREGIVER BURDEN IN PATIENTS UNDERGOING AUTOMATED PERITONEAL DIALYSIS (APD) VS. CONTINUOUS AMBULATORY PERITONEAL DIALYSIS (CAPD)

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Abstract: Chronic kidney disease causes a degree of disability in those who suffer from it, which is why most of their care is provided by a primary caregiver. Patients on peritoneal dialysis (PD) often become more fragile and functionally dependent. They require greater physical support from their families, which can lead to a degree of caregiver burden (1). **Objective:** To compare the caregiver burden of patients with chronic kidney disease undergoing renal replacement therapy with PDCA and DPA. **Materials and methods:** This research work is an analytical, comparative, cross-sectional, prospective study with random selection and systematically assigned controls. **Results:** A study was conducted on 120 caregivers, 62 of whom were caregivers of patients on CAPD and 58 of whom were caregivers of patients on APD. According to the Zarit questionnaire, the following results were found for caregivers: 12.9% for CAPD and 13.8% for APD experienced intense overload, 22.6% for CAPD and 10.3% for APD experienced mild overload, and 75.9% for CAPD and 65.4% for APD experienced no overload. **Conclusions:** The overload in caregivers of peritoneal dialysis patients is higher in CAPD patients (35.5%) compared to APD patients (24.1%), which is directly related to the number of hours spent on both modalities, showing that women are more likely to act as caregivers, predominantly in their thirties, and in terms of kinship, with 48% of wives providing care for these patients.

Keywords: Comparative Study, Caregiver Burden, Continuous Ambulatory Peritoneal Dialysis, Automated Peritoneal Dialysis.

Introduction

Globally, the number of patients with Chronic Kidney Disease (CKD) has increased at an alarming rate, posing a significant public health problem. given that individuals with Chronic Kidney Disease (CKD) have a series of comorbidities and risk factors associated with a higher probability of developing cardiovascular diseases, which account for approximately 50% of fatal outcomes in chronic kidney patients. The increase in Stage 5 Chronic Kidney Disease (CKD-5) is not a phenomenon exclusive to Mexico. Studies in the United States and Canada since the early 2000s have shown an increase in the annual incidence of the disease, even above the incidence of CKD, which implies that patients are predominantly recruited in the late stages of the disease (1).

Recently, the US National Kidney Foundation has proposed to the , through the K/DOQI clinical practice guidelines, a definition and classification of chronic kidney disease (CKD) with the objectives, among others, of unifying criteria and facilitating, in a simple and practical way, the early diagnosis of the disease regardless of the original cause(1)(2). CKD is defined as a decrease in renal function, expressed by an estimated glomerular filtration rate (GFR) or creatinine clearance < 60 ml/min/1.73m(2) 'or as the presence of persistent renal damage for at least 3 months. Kidney damage is usually diagnosed using markers, not by kidney biopsy, so the diagnosis of CKD, whether established by decreased GFR or by markers of kidney damage, can be made without knowing the cause. The main marker of kidney damage is elevated urinary excretion of albumin or protein.((

STAGE	DESCRIPTION	GFR (ml/min/1.73 m2)
1	Normal renal function	>90
2	Mild renal impairment	60-89
3	Moderate kidney damage	30-59
4	Severe kidney damage	15-29
5	Kidney failure	<15

GFR: Glomerular filtration rate.

CKD is the result of various chronic degenerative diseases, including diabetes mellitus and high blood pressure, a phenomenon that occurs similarly throughout the world and, unfortunately, leads to a fatal outcome if left untreated.(3)(4)

The causes of CKD in Mexico are as follows: diabetes mellitus (43%), high blood pressure (17%), chronic glomerulopathies (14.4%), undetermined (9.2%), polycystic kidneys (4.7%), congenital malformations of the urinary tract (4%), lupus nephropathy (3.3%), and others (4.4%).(3)

Chronic kidney disease causes a degree of disability in those who suffer from it, which is why most of their care is provided by a primary caregiver. Patients in a peritoneal dialysis (PD) program often become more fragile and functionally dependent. They require greater physical support from their families, which places a degree of strain on their caregivers (4). The treatments undergone by patients with chronic kidney disease (CKD) are invasive and highly demanding. They require home care, which in turn requires a caregiver to take charge of them, from physical care to nursing care. As a result, many of these patients may become dependent on the so-called “primary caregiver” depending on their need for help and their own characteristics, such as advanced age or other chronic diseases such as hypertension or diabetes(5,6).

The definition of the informal primary caregiver is the person responsible for helping with the basic and instrumental needs of the patient’s daily life for most of the day, without receiving financial compensation for their work (7). The primary caregiver is indispensable for the positive evolution of many of the clinical and care parameters of chronic patients (8).

In patients undergoing peritoneal dialysis, caregivers are more specific, focusing on diet, medication, physical activity, and dialysis itself, especially in home therapies, since in many cases the primary caregiver is totally or partially responsible for administering the treatment. In kidney disease, many patients become more fragile and functionally dependent, requiring greater physical support from their families (9) .

Overburdening can have a negative impact on caregivers’ health. Significant repercussions have been described in terms of physical health, social isolation, lack of free time, quality of life, and deterioration of economic status, giving rise to what some authors have termed caregiver syndrome(10,11) . Assessing the burden is essential to identify the areas in which the caregiver needs support, evaluate changes over time, and estimate their impact ((12)).

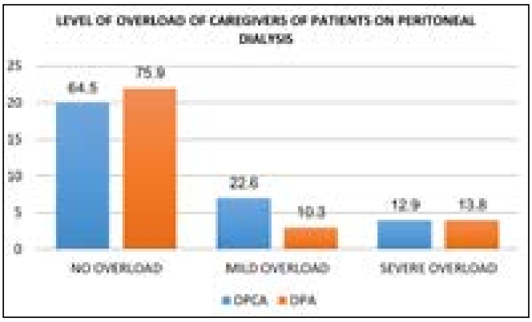
Description of the Method

A descriptive, cross-sectional, prospective, observational, comparative, and analytical study was conducted, including **individuals who act as caregivers for patients** enrolled in the peritoneal dialysis program**:** 62 patients on **CAPD and 58 patients on APD, for a total of 120 patients,** during the period from January to June 2024. The results obtained were calculated using measures of central tendency.

Results

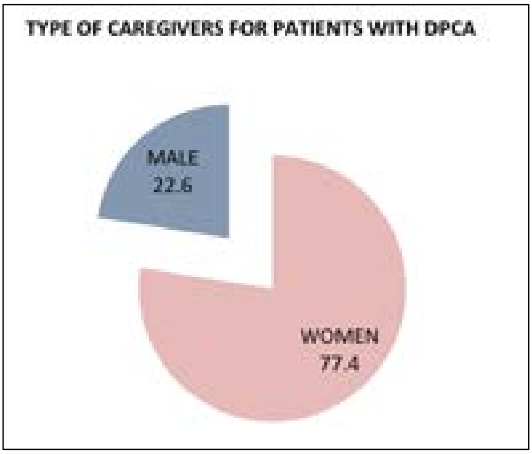
A study was conducted on 120 caregivers, 62 of whom were caregivers of patients on CAPD and 58 of whom were caregivers of patients on APD, according to the Zarit questionnaire.

The distribution of the level of overload is shown in the following graph.

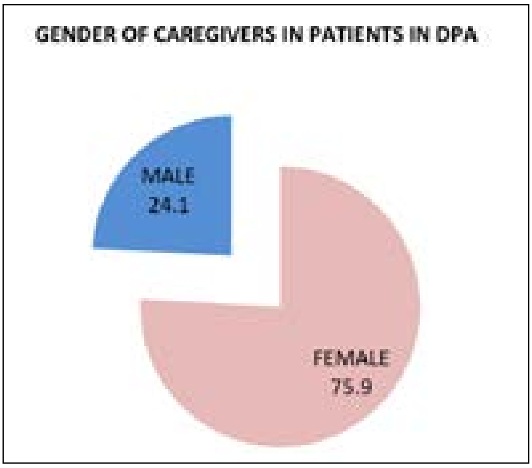


Graph 1. Source: Surveys conducted from January to June 2024.

With regard to gender, women predominated in both categories, with 77.4% of ACPA caregivers and 75% of APA caregivers being women. (Graphs 2 and 3)



Graph 2. Source: Surveys conducted from January to June 2024.



Graph 3. Source: Surveys conducted from January to June 2024.

The average age was similar for caregivers in the PDCA and PD groups, as shown in the following table

Dialysis Modality	Age	Minimum	Max	Average
DPCA	31	23	67	46.87
DPA	29	22	68	45.55

Table 1. Source: Surveys conducted from January to June 2024

With regard to the caregiver's relationship to the patient, the most common relationship was son in the case of PDAC and spouse in the case of PDA. (Table 2)

Dialysis Modality	Relationship	Frequency	Percentage
DPCA	Husband or wife	26	41.9
	Child	28	45.2
	Brother	6	9.7
	Grandchild	2	3.2
	Total	62	100.0
DPA	Husband or wife	32	55.2
	Child	18	31
	Brother	6	10.3
	Grandchild	2	3.4
	Total	58	100.0

Table 2. Source: Surveys conducted from January to June 2024

With regard to the difference between the hours spent caring for patients and the presence of overload, there is no difference between the groups studied (DPCA and DPA), as demonstrated by the presence of statistical significance (.000) in both groups. (TABLE 3)

TEST FOR A SINGLE SAMPLE

DIALYSIS MODALITY		Test value = 0					
		t	gl	Bilateral sign	Difference in means	95% Confidence interval for the difference	
						Lower	Upper
SDCA	Hours spent caring for the patient	12,710	29	,000	13,267	11,13	15.40
	Zarit Questionnaire	11,405	30	,000	1,484	1.22	1.75
DPA	Hours spent caring for the patient	7,816	28	,000	9,034	6.67	11.40
	Zarit Questionnaire	10,207	28	,000	1,379	1.1	1.66

Table 3. Source: Surveys conducted from January to June 2024.

Conclusions

It is concluded that the burden on caregivers of peritoneal dialysis patients is greater in CAPD patients (35.5%) than in APD patients (24.1%), which is directly related to the number of hours spent on both modalities, showing that females are more likely to act as primary caregivers, predominantly in their thirties, and that 48% of caregivers are spouses.

Chronic kidney patients included in a dialysis program are a very useful reference for assessing the importance and significance of both the informal care system and the formal healthcare system represented by healthcare institutions. Given the need for formal and informal care for chronic kidney patients, we consider it necessary to increase the relationship and contact between both healthcare systems.

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