

THE DIALYSIS DOSE VALUED BY KT/V AND CLEARANCE OF CREATININE AS PREDICTORS OF THE PRESENCE OF COMPLICATIONS IN PATIENTS UNDERGOING PERITONEAL DIALYSIS IN A HOSPITAL OF SECOND LEVEL IN GUADALAJARA, JALISCO, MEXICO



MANUEL ENRIQUE GUERRERO RUIZ*, IDALIA PARRA AVILA*, ANA P. RICO PORTILLO*, HECTOR PARRA LOMELI*, IRIS CAZARES CAMPOS*, LAURA E. IZGUERRA OCHOA*, ANA S. ESPINOZA TORRES*, LUIS RAMIREZ MORALES*, ERIKA A. PEREZ PACHECO*, HECTOR L. PAZARIN VILLASEÑOR.*

*DEPARTMENT OF NEPHROLOGY, REGIONAL GENERAL HOSPITAL NUMBER 46, MEXICAN INSTITUTE OF SOCIAL SECURITY, GUADALAJARA, JALISCO, MEXICO.

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INTRODUCTION AND AIMS: The measurement of the Kt/V has been validated to demonstrate the minimum doses of dialysis required to diminish the mortality among patients receiving dialysis. By now, few studies have been focused in the presence of complications among patients in peritoneal dialysis (PD) according to the clearance goals by the peritoneal Kt/V and clearance of creatinine (CCr).

Aim: to determinate if the peritoneal Kt/V and CCr predicts the presence of complications in patients undergoing PD in our centre.

METHODS: Single center descriptive study. In patients undergoing PD, weekly Kt/V and CCr were measured either in anuric and those with significant residual kidney function (urine output up to 100 milliliters per day). We determinate the presence of anemia according to KDOQI guidelines; malnutrition by hypoalbuminemia; calcium phosphorus index was calculated; systolic and diastolic arterial tension were graded according to the JNC 8 Report; the actual dose of erythropoietin prescribed was recorded and erythropoietin resistance index was obtained. Patients in either continuous ambulatory peritoneal dialysis (CAPD) or automated peritoneal dialysis (APD) were eligible.

RESULTS: 124 patients enrolled. The median age was 39 years (range 18 – 78 years), with a predominance of younger than 50 (64.3%). 91 (73.4%) were male, 94 (75.8%) were in CAPD and 56% had residual kidney function (those who had more than 100 milliliters of urine in a day).

From the total of patients, just 28 (22.5%) achieve both goals (Kt/V and CCr), and 56 (45.1%) fail to achieve both goals (**Table 1**).

KT/V	CLEARANCE OF CREATININE		Total n(%)
	> 50 l / week n(%)	< 50 l / week n(%)	
> 1.7 n(%)	28 (22.5)	10 (8.1)	38 (30.6)
< 1.7 n(%)	30 (24.5)	56 (45.1)	86 (69.4)
Total n(%)	58 (46.7)	66 (53.3)	124 (100)

Table 1. Patients who achieve goals of Kt/V and CCr

Media of weekly peritoneal Kt/V was 1.47, and CCr was 48.4 liters/week. Kidney clearance was important to improve CCr goals (p=0.003), but had no relevance in Kt/V.

As shown in **Table 2**, Kt/V was not predictor of better outcomes. CCr was predictor of a lower calcium phosphorus index (p=0.006) and diastolic arterial tension (p=0.02). Anuric patients who achieve both Kt/V and CCr had lower grade of hypoalbuminemia (p=0.02).

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Patients with residual kidney function, regardless of goals of clearance (Kt/V and CCr), had less anemia (p=0.006), lower erythropoietin resistance index (p=0.002) and calcium phosphorus index (p=0.0007).

KT/V	> 1.7	> 1.7	p
Hemoglobin (g/dL)	10.7	10.8	0.48
Erythropoietin Resistance index (Epo U/ Kg / Hb)	10.9	11.5	0.70
Calcium – Phosphorus index [Ca (mg/dL) x P (mg/dL)]	47.6	51.6	0.71
Seric Albumin (g/dL)	3.2	3.3	0.52
Systolic arterial tension (mmHg)	138.9	135.4	0.80
Diastolic arterial tension (mmHg)	85	83.2	0.31
CCr (L / week)	> 50	< 50	p
Hemoglobin (g/dL)	10.7	10.6	0.75
Erythropoietin Resistance index (Epo U/ Kg / Hb)	6.2	11.1	0.43
Calcium – Phosphorus index [Ca (mg/dL) x P (mg/dL)]	45.2	54.9	0.007
Seric Albumin (g/dL)	3.1	3.3	0.16
Systolic arterial tension (mmHg)	136.4	136.5	0.97
Diastolic arterial tension (mmHg)	83.1	80.1	0.02
Residual Kidney Function (> 100 ml / d)	Yes	No	p
Hemoglobin (g/dL)	11.1	10.2	0.006
Erythropoietin Resistance index (Epo U/ Kg / Hb)	8.8	14.5	0.002
Calcium – Phosphorus index [Ca (mg/dL) x P (mg/dL)]	46.6	55.2	0.0007
Seric Albumin (g/dL)	3.2	3.3	0.40
Systolic arterial tension (mmHg)	136.1	137	0.27
Diastolic arterial tension (mmHg)	83.1	84.4	0.98

Table 2. Media of the outcomes studied, according to clearance objectives

Anuric patients who achieved both clearance objectives (Kt/V and CCr) had less hypoalbuminemia (p=0.02) and better level of diastolic arterial tension (p=0.04).

CONCLUSIONS: Peritoneal Kt/V was not predictor of PD related complications studied. CCr was related with better calcium and phosphorus index and lower diastolic arterial tension.

Residual kidney function is important to achieve only the CCr goal, and it was associated with less anemia, erythropoietin resistance and calcium phosphorus index. It is important to monitor the residual kidney function in these patients in order to make a good PD adequacy to achieve the goals proposed at international guidelines.

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